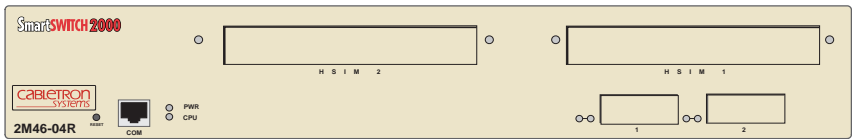


2M46-04R/2M46-04RDC

SmartSwitch 2000

User's Guide





Only qualified personnel should perform installation procedures.

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SAFETY INFORMATION

CLASS 1 LASER TRANSCEIVERS

THE FE-100F3 FAST ETHERNET INTERFACE MODULE, FPIM-05 AND FPIM-07 FDDI PORT INTERFACE MODULES, AND APIM-29 ATM PORT INTERFACE MODULE USE CLASS 1 LASER TRANSCEIVERS. READ THE FOLLOWING SAFETY INFORMATION BEFORE INSTALLING OR OPERATING THESE MODULES.

The Class 1 laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 Laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

SAFETY INFORMATION

CLASS 1 LASER TRANSCEIVERS

LASER RADIATION AND CONNECTORS

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6 dBm or 55×10^{-6} watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is 0.8 W cm^{-2} or $8 \times 10^3 \text{ W m}^{-2} \text{ sr}^{-1}$.

Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

DECLARATION OF CONFORMITY

Application of Council Directive(s): **89/336/EEC
73/23/EEC**

Manufacturer's Name: **Cabletron Systems, Inc.**

Manufacturer's Address: **35 Industrial Way
PO Box 5005
Rochester, NH 03867**

European Representative Name: **Mr. J. Solari**

European Representative Address: **Cabletron Systems Limited
Nexus House, Newbury Business Park
London Road, Newbury
Berkshire RG13 2PZ, England**

Conformance to Directive(s)/Product Standards: **EC Directive 89/336/EEC
EC Directive 73/23/EEC
EN 55022
EN 50082-1
EN 60950**

Equipment Type/Environment: **Networking Equipment, for use in a
Commercial or Light Industrial
Environment.**

We the undersigned, hereby declare, under our sole responsibility, that the equipment packaged with this notice conforms to the above directives.

Manufacturer	Legal Representative in Europe
Mr. Ronald Fotino	Mr. J. Solari
Full Name	Full Name
Principal Compliance Engineer	Managing Director - E.M.E.A.
Title	Title
Rochester, NH, USA	Newbury, Berkshire, England
Location	Location

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CHAPTER 1

INTRODUCTION

Welcome to the **2M46-04R/04RDC SmartSwitch 2000 User's Guide**. This guide describes the 2M46-04R and 2M46-04RDC SmartSwitch 2000 devices and provides information concerning network requirements, installation, troubleshooting, and the use of Local Management.



The 2M46-04R and 2M46-04RDC have identical features and functions with the exception of their power source connection. The 2M46-04R connects to an ac power source and the 2M46-04RDC connects to a dc power source. Both the 2M46-04R and 2M46-04RDC are referred to as the 2M46-04R unless otherwise specified in this guide.

1.1 USING THIS GUIDE

Read through this guide completely to understand the 2M46-04R features, capabilities, and Local Management functions.

1.2 STRUCTURE OF THIS GUIDE

This guide is organized as follows:

Chapter 1, Introduction, outlines the contents of this manual and briefly describes the 2M46-04R features. Directions about how to obtain additional help and a list of related manuals are also included.

Chapter 2, Network Requirements, explains the network requirements to consider before installing the 2M46-04R.

Chapter 3, Installation, provides instructions on how to install the 2M46-04R and connect segments to the device.

Chapter 4, Troubleshooting, describes the function of the LANVIEW LEDs, which can help to quickly diagnose network/operational problems.

Chapter 5, Local Management, describes how to access Local Management and use the Local Management screens to manage the 2M46-04R.

Appendix A, Specifications, contains information on functionality and operating specifications, connector pinouts, environmental requirements, and physical properties.

Appendix B, FE-100TX, FE-100FX, and FE-100F3 Specifications, contains information about FE-100TX pinouts and information concerning cable types used with the FE-100FX and FE-100F3.

Appendix C, Optional Installations and Mode Switch Bank Settings, describes how to install optional Fast Ethernet Interface Modules and how to set the Mode Switch.

1.3 2M46-04R OVERVIEW

The 2M46-04R, shown in **Figure 1-1**, is a 4-port high-speed network switching device that supports traditional switching (bridging), IEEE 802.1Q switching (port based VLANs), and Cabletron Systems SecureFast Switching Virtual Network technology. The 2M46-04R also has redundant power supplies.

Ports 1 and 2 on the 2M46-04R support optional Fast Ethernet Interface Modules and can provide uplinks to 100BASE-TX or 100BASE-FX Fast Ethernet networks. There are also two HSIM slots that support optional High Speed Interface Modules (HSIMs) that provide additional connectivity to various networking technologies such as Asynchronous Transfer Mode (ATM), Wide Area Networks (WANs), and Fiber Distribution Data Interface (FDDI).

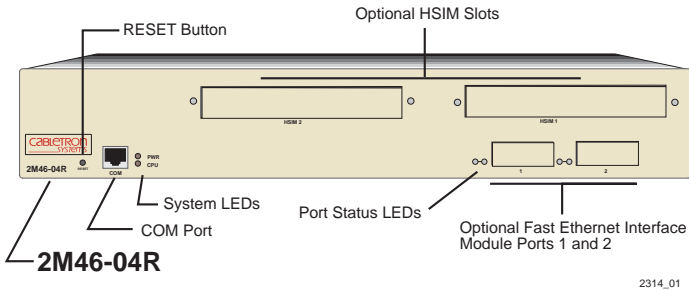


Figure 1-1 The 2M46-04R

The 2M46-04R is a tabletop unit that can be installed in a standard 19-inch rack using the supplied rack mounting hardware.

The 2M46-04R has two ac power supplies. The power supplies load share 50% (+/-5%) of the power required by the device. If one power supply fails, the remaining power supply assumes the entire load of the device without interruption to network traffic. Each power supply module supports its own ac input connection, which allows the user to connect each power supply to a different ac power circuit.

The 2M46-04RDC operates from two dc voltage power sources. The power supplies load share 50% (+/-5%) of the power required by the device. If one power supply fails, the remaining power supply assumes the entire load of the device without interruption to network traffic. Each power supply module supports its own dc input connection, which allows the user to connect each power supply to a different dc power source.

1.3.1 Connectivity

The 2M46-04R has two front panel slots (ports 1 and 2) for optional Fast Ethernet Interface Modules to support an uplink to 100 Mbps Fast Ethernet backbones or a high speed connection to a local server. There are also two HSI slots for optional HSIs to provide additional connectivity to various networking technologies.

1.3.2 Full Duplex Switched Ethernet

The optional Fast Ethernet Interface Modules can be configured to operate in Full Duplex Switched Ethernet (FDSE) mode which provides up to 200 Mbps of throughput per interface.

1.3.3 Auto-Negotiation

The optional FE-100TX Fast Ethernet Interface Module can auto-negotiate the type of connection required to provide a link to another device. During Auto-Negotiation, two devices automatically exchange information “telling” each other what their operating capabilities are. The Auto-Negotiation feature targets the maximum capabilities that can be reached between the two devices. For example, a 2M46-04R FE-100TX Fast Ethernet Interface Module adjusts to 100 Mbps when the device on the other end of the connection can also adjust to 100 Mbps. If the device on the other end of the connection can only operate at 10 Mbps, then the 2M46-04R Fast Ethernet Interface Module simply adjusts to 10 Mbps.

When Auto-Negotiation is supported at both ends of a link, the two devices dynamically adjust to full or half duplex operation based on the maximum capability that can be reached between the two devices. If the device connected to the 2M46-04R cannot auto-negotiate, the 2M46-04R Fast Ethernet Interface Module operates according to the capabilities of the other device.

1.3.4 SmartTrunk

SmartTrunk, also referred to as SmartTrunking, is Cabletron Systems’ terminology for load balancing or load sharing. SmartTrunk technology provides an easy-to-implement mechanism to group, or aggregate, multiple physical links together to scale the backbone bandwidth beyond the limitations of a single link. All links are user-configurable so administrators can scale the backbone bandwidth by adding SmartTrunk links. The SmartTrunk benefits are as follows:

- All purchased bandwidth is used.
- Distributed, resilient links increase reliability and performance.
- Multiple technologies are supported within a single trunk for maximum flexibility.

For more information about SmartTrunk, refer to the Cabletron Systems *SmartTrunk User’s Guide*.

1.3.5 Runtime IP Address Discovery

This feature enables the 2M46-04R to automatically accept an IP address from a BootP server on the network into NVRAM without requiring the user to enter an IP address through Local Management.

When the 2M46-04R is connected to the network and powered up, Runtime IP Address Discovery (RAD) checks the 2M46-04R for an IP address. If one has not yet been assigned, RAD checks to see if any of the 2M46-04R interfaces have a link. If so, RAD sends out Reverse Address Resolution Protocol (RARP) and BootP requests to obtain an IP address from a BootP server on the network.

The RAD requests start out at an interval of 1 second, then the interval doubles after every transmission until an interval of 300 seconds is reached. At this point, the interval remains at 300 seconds. The RAD requests continue until an IP address is received from a BootP server, or an IP address is entered using Local Management.

1.3.6 Management

Management of the 2M46-04R is accomplished using Local Management tools or remote SNMP management stations. Local Management is accessible through the RS232 COM port on the front panel using a local VT100 terminal, or a remote VT100 terminal via a modem connection, and in-band via a Telnet connection. In-band remote management is possible through any SNMP compliant Network Management Software.

Local Management provides the ability to manage the 2M46-04R and any of the optional Fast Ethernet Interface Modules installed in ports 1 and 2 and the optional High Speed Interface Modules (HSIMs).

The associated High Speed Interface Module user's guide provides detailed information about Local Management of the HSIM.

Information about how to access and use Local Management is contained in [Chapter 5](#).

1.3.7 Switching

The 2M46-04R provides traditional switching (802.1D), IEEE 802.1Q switching, or SecureFast Switching (SFS) Virtual Network Services between all of the optional Fast Ethernet Interface Modules and High Speed Interface Modules (HSIMs). SFS and 802.1Q switching allow for migration to Virtual Network technologies without requiring the replacement of existing equipment.

1.3.8 Standards Compatibility

The optional Fast Ethernet Interface Modules are fully compliant with the IEEE 802.3u standard. The 2M46-04R provides IEEE 802.1D Spanning Tree Algorithm (STA) support or DEC spanning tree support to enhance the overall reliability of the network and protect against “loop” conditions. The 2M46-04R supports a wide variety of industry standard MIBs including RFC 1213 (MIB II), RFC 1271 (RMON), RFC 1317 (RS232 MIB), RFC 1493 (Bridge MIB), RFC 1573 (Evolution of MIB II Interfaces), and RFC 1354 (FIB MIB). A full suite of Cabletron Systems Enterprise MIBs provide a wide array of statistical information to enhance troubleshooting.

1.3.9 Year 2000 Compliance

The 2M46-04R has an internal clock that can maintain the time and date beyond the year 1999.

1.3.10 LANVIEW Diagnostic LEDs

LANVIEW diagnostic LEDs serve as an important troubleshooting aid by providing an easy way to observe the status of individual ports and overall network operations. [Chapter 4](#) provides details about the 2M46-04R LANVIEW LEDs.

1.3.11 Optional Features

Options for the 2M46-04R include Fast Ethernet Interface Modules and High Speed Interface Modules to add uplink capability. Cabletron Systems provides Fast Ethernet Interface Modules to support uplinks to 100 Mbps Ethernet backbones or high speed connections to local servers. The Fast Ethernet Interface Modules are listed in [Table 1-1](#).

Table 1-1 Fast Ethernet Interface Modules

P/N	Description	Application
FE-100TX	Uses RJ45 connector	Supports Category 5 Unshielded Twisted Pair (UTP) with impedance of 85 to 111 ohms.
FE-100FX	Uses SC connector	Supports multimode fiber optic cabling.
FE-100F3	Uses SC connector	Supports single mode fiber optic cabling.



Other Fast Ethernet Interface Modules may be available for the 2M46-04R. Check the Release Notes included with the 2M46-04R.

High Speed Interface Modules (HSIMs) are available from Cabletron Systems for additional connectivity to various networking technologies. The HSIMs available for the 2M46-04R are listed in the Release Notes.

1.4 DOCUMENT CONVENTIONS

The following conventions are used throughout this document:



Note symbol. Calls the reader's attention to any item of information that may be of special importance.



Tip symbol. Conveys helpful hints concerning procedures or actions.



Caution symbol. Contains information essential to avoid damage to the equipment.



Electrical Hazard Warning symbol. Warns against an action that could result in personal injury or death due to an electrical hazard.



Warning symbol. Warns against an action that could result in personal injury or death.

1.5 GETTING HELP

For additional support related to this device or document, contact the Cabletron Systems Global Call Center:

World Wide Web	http://www.cabletron.com/
Phone	(603) 332-9400
Internet mail	support@cabletron.com
FTP	ftp://ftp.cabletron.com/
Login	<i>anonymous</i>
Password	<i>your email address</i>
To send comments or suggestions concerning this document, contact the Cabletron Systems Technical Writing Department via the following email address: TechWriting@cabletron.com <i>Make sure to include the document Part Number in the email message.</i>	

Before calling the Cabletron Systems Global Call Center, have the following information ready:

- Your Cabletron Systems service contract number
- A description of the failure
- A description of any action(s) already taken to resolve the problem (e.g., changing mode switches, rebooting the unit, etc.)
- The serial and revision numbers of all involved Cabletron Systems products in the network
- A description of your network environment (layout, cable type, etc.)
- Network load and frame size at the time of trouble (if known)
- The device history (i.e., have you returned the device before, is this a recurring problem, etc.)
- Any previous Return Material Authorization (RMA) numbers

1.6 RELATED MANUALS

The following manuals may help to set up, control, and manage the 2M46-04R using SNMP network management systems:

Cabletron Systems *ATM Technology Guide*

Cabletron Systems *FDDI Technology Guide*

Cabletron Systems *HSIM-A6DP User's Guide*

Cabletron Systems *HSIM-F6 User's Guide*

Cabletron Systems *HSIM-FE6 User's Guide*

Cabletron Systems *HSIM-W6 Installation Guide*

Cabletron Systems *HSIM-W84 Installation Guide*

Cabletron Systems *Local Management for CSX200, CSX400, CSX400-DC, HSIM-W6, and HSIM-W84*

Cabletron Systems *HSIM-W87 User's Guide*

Cabletron Systems *HSIM-G01/G09 User's Guide*

Cabletron Systems *Ethernet Technology Guide*

Cabletron Systems *Cabling Guide*

Cabletron Systems *Port Based VLAN User's Guide*

Cabletron Systems *SmartTrunk User's Guide*

These manuals can be obtained from the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following site:

<http://www.cabletron.com/>



All documentation for Cabletron Systems SecureFast VLAN Manager software can be found on the VLAN Manager CD-ROM.

The documentation for the HSIM-W6 and HSIM-W84 is on the QuickSET CD-ROM.

CHAPTER 2

NETWORK REQUIREMENTS

Before installing the 2M46-04R or Fast Ethernet Interface Module, review the requirements and specifications referred to in this chapter.

The network installation must meet the guidelines to ensure satisfactory performance of this equipment. Failure to follow the guidelines may produce poor network performance.



The Cabletron Systems *Cabling Guide and SmartTrunk User's Guide*, referred to in the following sections, can be found on the Cabletron Systems World Wide Web site: <http://www.cabletron.com/>

2.1 SmartTrunk

To connect the 2M46-04R to a network so it can take advantage of the SmartTrunk feature, there are certain rules concerning port connections and configurations that must be followed for proper operation. Refer to the Cabletron Systems *SmartTrunk User's Guide* for additional information.

2.2 100BASE-TX NETWORK

The 2M46-04R, with an FE-100TX installed in ports 1 or 2, provides an RJ45 connection that supports Category 5 unshielded twisted pair (UTP) cabling, with an impedance between 85 and 111 ohms. The device at the other end of the twisted pair segment must support IEEE 802.3u 100BASE-TX Fast Ethernet operations. The cabling between the devices must meet the test criteria for a 100BASE-TX link for the devices to operate at 100 Mbps. Refer to the Cabletron Systems *Cabling Guide* for details.



The 2M46-04R with an FE-100TX installed is capable of operating at either 10 or 100 Mbps. The FE-100TX can automatically sense the speed of the other device and adjust its speed accordingly.

2.3 100BASE-FX FIBER OPTIC NETWORK

Ports 1 and 2 of the 2M46-04R support the Cabletron Systems FE-100FX and FE-100F3 fiber optic interface modules. The device at the other end of the fiber optic segment must support the 100BASE-FX Fast Ethernet operations. The cabling between the devices must meet the test criteria for a 100BASE-FX link for the devices to operate at 100 Mbps. Refer to the Cabletron Systems *Cabling Guide* for details.

Multimode Mode Fiber Optic Cable

The test characteristics of a 100BASE-FX segment is covered in the Cabletron Systems *Cabling Guide*.

Single Mode Fiber Cable

The test characteristics of a single mode fiber optic link are similar to those for a multimode fiber optic 100BASE-FX link, with the following exceptions:

- Cable type - 8.3/125 μM
- Maximum Length - no more than 5 km from Data Terminal Equipment (DTE) to DTE in half duplex mode, or 20 km from DTE to DTE in full duplex mode.

CHAPTER 3

INSTALLATION



Only qualified personnel should install the 2M46-04R.

This chapter provides all instructions required to install the 2M46-04R. A Phillips screwdriver is required to install the device.

3.1 UNPACKING THE 2M46-04R

Unpack the 2M46-04R as follows:

1. Open the box and remove the packing material protecting the 2M46-04R.
2. Verify the contents of the carton as listed in [Table 3-1](#).

Table 3-1 Contents of 2M46-04R Carton

Item	Quantity
2M46-04R	1
Antistatic Wrist Strap	1
Console Cable Kit	1
Rackmount Kit	1
Strain-Relief Bracket	1
Power Cords (2M46-04R only)	2
Release Notes	1

3. Remove the black and amber tape seal on the non-conductive bag to remove the 2M46-04R.
4. Perform a visual inspection of the device. If there are any signs of physical damage, contact the Cabletron Systems Global Call Center.

3.2 INSTALLING OPTIONS



Install any optional equipment before proceeding to [Section 3.3](#).

If the 2M46-04R is to be installed with an optional Fast Ethernet Interface Module, refer to [Appendix C](#) for installation instructions. The installation instructions for the HSIMs are in the associated HSIM user's guide.

3.3 INSTALLING THE 2M46-04R

The 2M46-04R may be installed on a tabletop, shelf, or in a 19-inch rack. [Section 3.3.1](#) describes a tabletop or shelf installation and [Section 3.3.2](#) describes the rackmount installation.



To prevent possible damage to the unit, do **NOT** connect power to the 2M46-04R until instructed to do so.

3.3.1 Tabletop or Shelf Installation

Tabletop and shelf installations must be within reach of the network cabling and meet the requirements listed below:

- Locate the 2M46-04R within seven feet of an appropriately grounded power receptacle that meets the power supply requirements listed in [Appendix A, Specifications](#). (This requirement does not apply to the 2M46-04RDC.)
- In a shelf installation, the shelf must support 13.6 kg (30 lb) of static weight for all devices.
- Maintain a temperature of between 5°C (41°F) and 40°C (104°F) at the installation site with fluctuations of less than 10°C (18°F) per hour.



Maintain a 2-inch clearance from the left, right, and rear sides of the device to provide adequate ventilation and prevent overheating.

Locate the 2M46-04R on an unrestricted free surface area as shown in **Figure 3-1**. Proceed to **Section 3.4.1** for 2M46-04R power connection instructions and to **Section 3.4.2** for 2M46-04RDC power connection instructions.

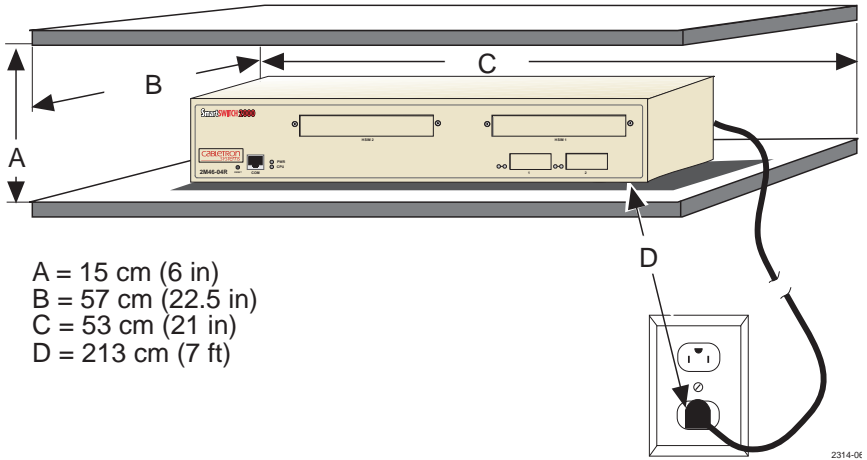


Figure 3-1 Tabletop or Shelf Installation

3.3.2 2M46-04R and 2M46-04RDC Rackmount Installation



Before installing the 2M46-04R/04RDC into a rack, ensure that the rack supports the device(s) without compromising the stability of the rack. Otherwise, personal injury and/or equipment damage may result.

Guidelines for the Rackmount Installation

The installation site must be within reach of the network cabling and meet the requirements listed below:

- An appropriate grounded power receptacle must be located within seven feet of the device. (This requirement does not apply to the 2M46-04RDC.)
- Maintain a temperature of between 5°C (41°F) and 40°C (104°F) at the installation site with fluctuations of less than 10°C (18°F) per hour.



To ensure proper ventilation and prevent overheating, leave a minimum clearance space of 5.1 cm (2.0 in) at the left, right, and rear of the 2M46-04R.

To install the 2M46-04R/04RDC in a 19-inch rack, Cabletron Systems includes an accessory kit containing the rackmount brackets, mounting screws, and a strain-relief bracket for cable management.

Attaching the Strain-Relief Bracket

Attach the strain-relief bracket to the front of the 2M46-04R/04RDC as follows:

1. Locate the strain-relief bracket and four 8-32 x 3/8-inch pan-head screws in the rackmount kit.



Do not attempt to attach the strain-relief bracket with screws other than the 8-32 x 3/8-inch screws included with the 2M46-04R/04RDC. Use of longer screws may damage the unit.

2. Place the 2M46-04R/04RDC upside down (as shown in [Figure 3-2](#)) on a clean flat surface. Then attach the strain-relief bracket to the bottom of the 2M46-04R/04RDC using the four 8-32 x 3/8-inch pan-head screws.

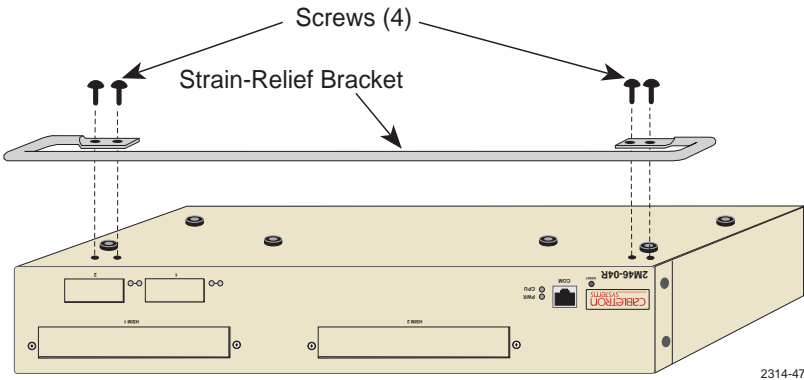


Figure 3-2 Attaching the Strain-Relief Bracket

There are two methods for attaching the rackmount brackets for the 2M46-04R and 2M46-04RDC. Proceed to the section entitled [Rackmounting the 2M46-04R](#) for instructions on installing the 2M46-04R, or the section entitled [Bonding the Rackmount Brackets to the 2M46-04RDC](#), which discusses the GR-1089-CORE Section 9 bonding requirements for the 2M46-04RDC when installing rackmount brackets.

Rackmounting the 2M46-04R

Proceed as follows to install the 2M46-04R into a 19-inch rack.

1. Remove and discard the four cover screws (two from each side) located along the front edges of each side of the 2M46-04R.
2. Locate the four 6-32 x 3/8-inch flat head cover replacement screws in the rackmount kit. Use these screws to attach the rackmount brackets to the 2M46-04R as shown in [Figure 3-3](#).

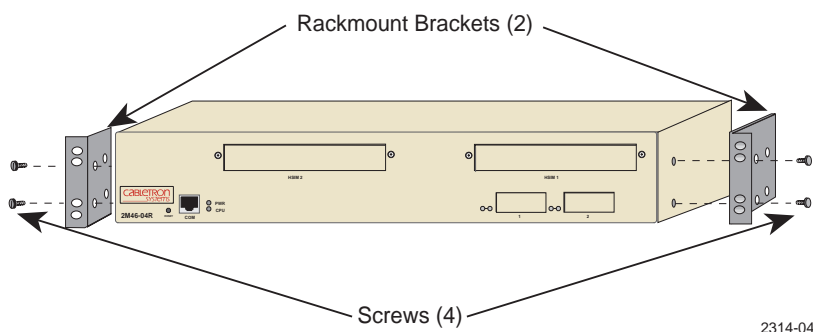


Figure 3-3 Installing the Rackmount Brackets

3. With the mounting brackets installed, position the 2M46-04R between the vertical frame members of the 19-inch rack and fasten it securely with mounting screws as shown in [Figure 3-4](#).

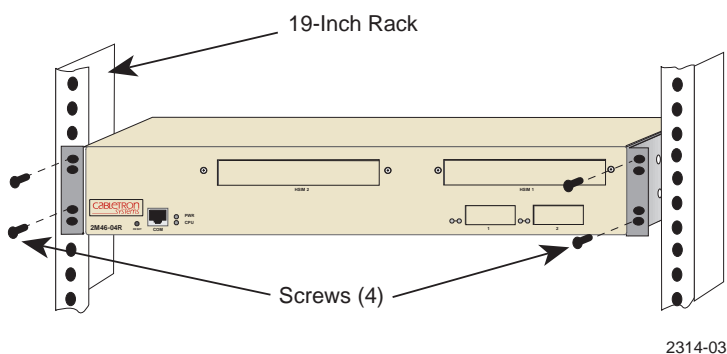


Figure 3-4 Installing the 2M46-04R in a Rack

Bonding the Rackmount Brackets to the 2M46-04RDC

If the 2M46-04RDC is going to be mounted in a rack and needs to meet the GR-1089-CORE Section 9 bonding requirements, use the following instructions to install the 2M46-04RDC into a 19-inch rack.

1. Remove and discard the four cover screws (two from each side) located along the front edges of each side of the 2M46-04RDC.
2. Remove the paint from around the area near the mounting holes on the left and right side of the cover of the 2M46-04RDC. See [Figure 3-5](#).
3. Apply a thin layer of anti-oxidant to the surface where the paint was removed.

4. Locate the four 6-32 x 3/8-inch flathead cover replacement screws in the rackmount kit. Use these screws to attach the rackmount brackets to the 2M46-04RDC as shown in **Figure 3-5**.

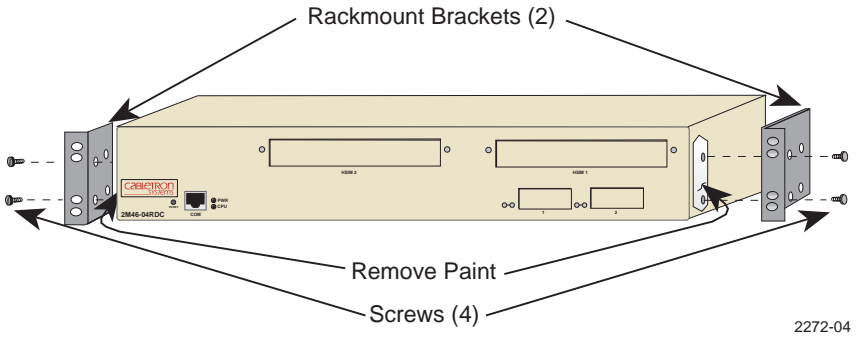


Figure 3-5 Installing the 2M46-04RDC Rackmount Brackets

5. With the mounting brackets installed, position the 2M46-04RDC between the vertical frame members of the 19-inch rack and fasten it securely with thread-forming mounting screws (user supplied) as shown in **Figure 3-6**.

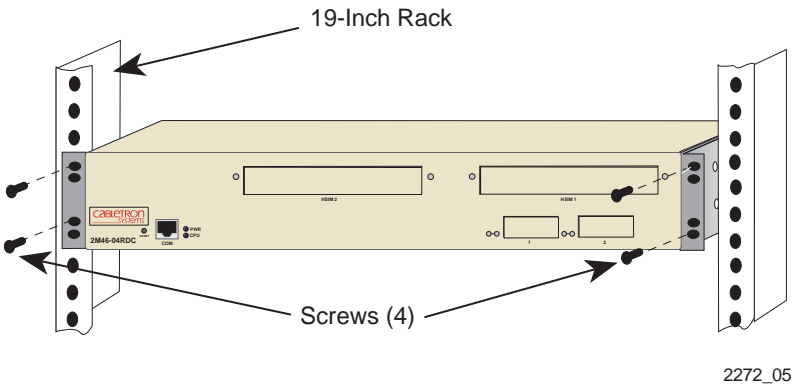


Figure 3-6 Installing the 2M46-04RDC in a Rack

3.4 CONNECTING POWER

The 2M46-04R connects to an ac power source and the 2M46-04RDC connects to a dc power source. If you are connecting power to a 2M46-04R, proceed to section 3.4.1. If you are connecting power to a 2M46-04RDC, proceed to section 3.4.2.

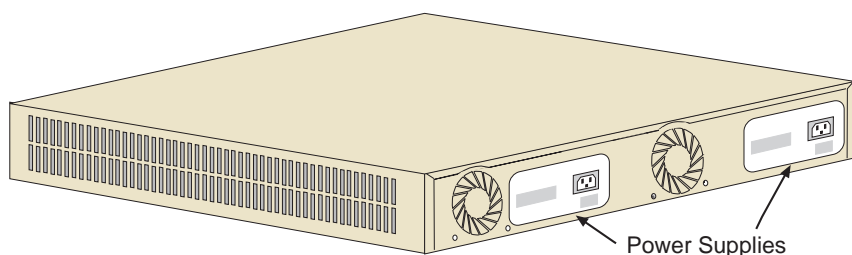
3.4.1 Connecting Power to the 2M46-04R



The 2M46-04R has two power supplies with automatic voltage sensing that allow connection to power sources ranging from 100–125 Vac or 200–250 Vac, 50/60 Hz.

To connect the 2M46-04R to the power sources, proceed as follows:

1. Insert the connector of each power cord into the two power supplies and insert the plug of each power cord into a grounded wall outlet (see Figure 3-7). To take advantage of the load sharing and redundancy capabilities, each power cord must be plugged into a dedicated ac outlet. The POWER LED turns ON (green) and the CPU LED turns ON (green) briefly.



2363-62

Figure 3-7 2M46-04R Rear View



It takes approximately one minute for the 2M46-04R to boot up.

2. Observe the LANVIEW LEDs. After a successful boot, the CPU LED turns ON (green). If the PWR LED turns amber, there is no power redundancy. Check the power cord connections and the power source. If there are no problems with the power cord connections or power source and the PWR LED is still not green, contact the Cabletron Systems Global Call Center. Refer to [Section 1.5](#) for details.

3.4.2 Connecting Power to the 2M46-04RDC



ONLY QUALIFIED PERSONNEL SHOULD PERFORM THESE INSTALLATION PROCEDURES.



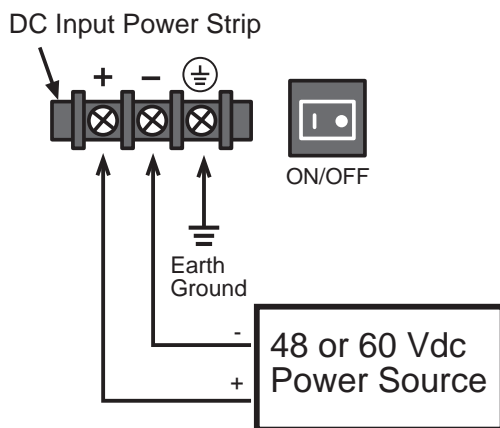
TO REDUCE THE RISK OF ELECTRIC SHOCK OR ENERGY HAZARDS:

- CONNECT TO A RELIABLY GROUNDED 48/60 VDC SELV SOURCE.
- THE BRANCH CIRCUIT OVERCURRENT PROTECTION MUST BE RATED AT 15 A.
- USE 12 OR 14 AWG CONDUCTORS ONLY.
- A READILY ACCESSIBLE DISCONNECT DEVICE THAT IS SUITABLY APPROVED AND RATED, SHALL BE INCORPORATED IN THE FIELD WIRING.

TO BE INSTALLED IN A RESTRICTED ACCESS AREA IN ACCORDANCE WITH THE NEC OR THE AUTHORITY HAVING JURISDICTION.

The 2M46-04RDC has two dc power supplies with their own on/off switch and input power strip, and are each rated at 100 watts. Each dc power supply input requires either a 48 Vdc or 60 Vdc power source, 4.0 A (maximum), supplied by three 12 or 14 AWG (American Wire Gauge) copper wires. These wires must be terminated with either ring or spade terminals that accept a #6 screw.

To connect the 2M46-04RDC to a 48/60 Vdc power source, face the back of the device, then refer to [Figure 3-8](#) and proceed as follows:



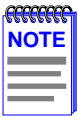
2363-02

Figure 3-8 Connecting to a 48/60 Vdc Power Supply



To prevent injury or damage to the equipment, remove power from a 48/60 Vdc power source before proceeding with the following steps.

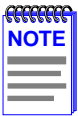
1. Connect the ground (⊕) terminal of the dc input power strip to an appropriate earth ground.
2. Refer to [Figure 3-8](#) for the proper connections to a 48/60 Vdc power source. Then connect the output leads from the 48/60 Vdc power source being used to the negative (-) and positive (+) terminals on the dc input power strip.
3. Repeat steps 1 and 2 to connect a 48/60 Vdc power source to the other dc input power strip on the 2M46-04RDC.
4. Restore power to the 48/60 Vdc power sources.
5. Press the power switches to on.



The 2M46-04RDC sounds an audible alarm if there is a polarity reversal. If the alarm sounds, turn off the 48/60 Vdc power source to that power supply. Then reverse the positive and negative leads to the dc input power strip of that power supply. Restore power from the 48/60 Vdc power source. Press the on/off switch to on. If the alarm sounds again, press the power switch to off and contact the Cabletron Systems Global Call Center. Refer to [Section 1.5](#).

3.5 CONNECTING TO THE NETWORK

This section provides the procedures for connecting UTP and fiber optic segments from the network or other devices to the 2M46-04R.



If the 2M46-04R is being installed in a network using SmartTrunking, there are rules concerning the network cable and port configurations that must be followed for SmartTrunking to operate properly. Before connecting the cables, refer to the Cabletron Systems *SmartTrunk User's Guide* for the configuration information.

Ports 1 and 2 support FE-100TX, FE-100FX, or FE-100F3 Fast Ethernet Interface Modules. Refer to [Section 3.5.1](#) to make a UTP cable connection to an optional FE-100TX in port slot 1 or 2. Refer to [Section 3.5.2](#) to make an SC fiber optic cable connection to an optional FE-100FX or FE-100F3 in port slot 1 or 2.

Refer to the associated High Speed Interface Module user's guide to make connections to an optional High Speed Interface Module installed in the HSIM slots.

3.5.1 Connecting a UTP Segment to the FE-100TX

An FE-100TX installed in port slot 1 and/or 2 has an internal crossover. If you need a crossover, set the Fast Ethernet Interface Module crossover switch shown in [Figure 3-9](#) to the crossed over position marked with an **X**. If you do not need a crossover, set the Fast Ethernet Interface Module crossover switch shown in [Figure 3-9](#) to the straight-through (not crossed over) position, marked with an **=**.

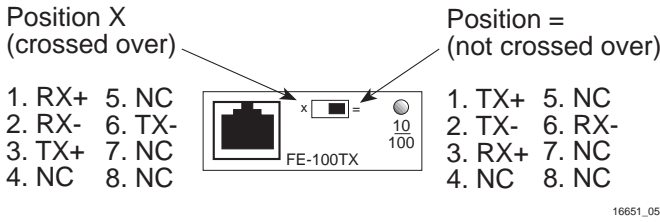


Figure 3-9 FE-100TX Crossover Switch

A schematic of a crossover cable is shown in Figure 3-10.

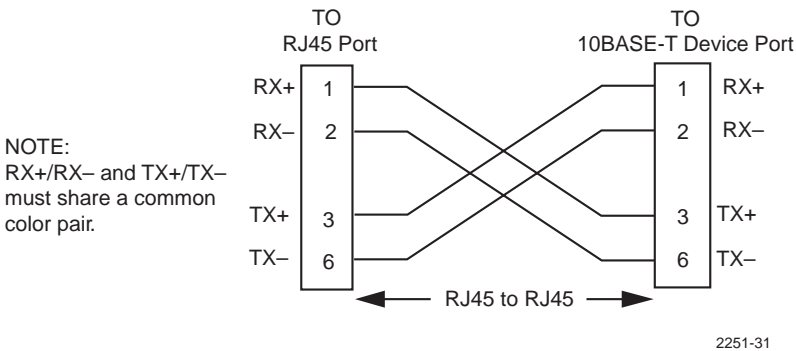


Figure 3-10 Schematic of Crossover Cable

Connect an FE-100TX to a twisted pair segment as follows:

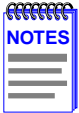
1. Ensure that the device connected to the other end of the segment is powered ON.
2. Connect the twisted pair segment to the module by inserting the RJ45 connector on the twisted pair segment into the RJ45 port on the module shown in Figure 3-9.
3. Verify that a link exists by checking that the port **RX** LED is ON (flashing amber, blinking green, or solid green). If the **RX** LED is OFF and the **TX** LED is not blinking amber, perform the following steps until it is on:
 - a. Verify that the 100BASE-TX device at the other end of the twisted pair segment is powered up.

- b. Verify that the RJ45 connector on the twisted pair segment has the proper pinouts.
- c. Check the cable for continuity.
- d. Make sure that the twisted pair connection meets the cable specifications outlined in the Cabletron Systems *Cabling Guide*.
- e. Confirm that the crossover switch is in the correct position.

If a link is not established, see [Chapter 4, Troubleshooting](#), before contacting the Cabletron Systems Global Call Center (refer to [Section 1.5](#) for details).

3.5.2 Connecting a Fiber Optic Segment to the FE-100FX and FE-100F3

The FE-100FX and FE-100F3 have SC style network ports (see [Figure 3-11](#)).



An odd number of crossovers (preferably one) must be maintained between like devices so that the transmit port of one device is connected to the receive port of the other device and vice versa.

If the fiber optic cable being used has SC style connectors that do not resemble MIC style connectors, or has SC connectors on one end and a different type on the other, such as ST connectors, ensure that the proper crossing over occurs.

Fiber Optic Network Connection

1. Remove the protective rubber covers from the fiber optic ports on the applicable port on the module and from the ends of the connectors.

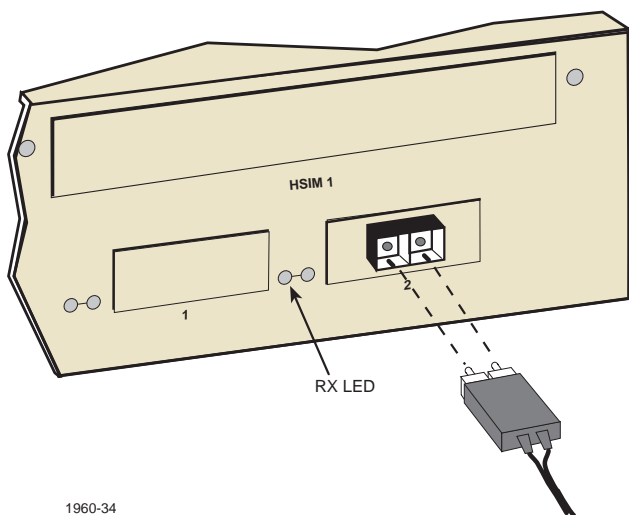


The FE-100F3 uses Class 1 lasers. Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.



Do not touch the ends of the fiber optic strands, and do not let the ends come in contact with dust, dirt, or other contaminants. Contamination of the ends causes problems in data transmissions. If the ends become contaminated, blow the surfaces with a canned duster. A fiber port cleaning swab saturated with optical-grade isopropyl alcohol may also be used to clean the ends.

2. Insert one end of the SC connector into the FE-100FX or FE-100F3 installed in the 2M46-04R. See [Figure 3-11](#).
3. At the other end of the fiber optic cable, attach the SC connector to the other device.



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Figure 3-11 FE-100FX and FE-100F3 Ports

4. Verify that a link exists by checking that the port **RX** LED is ON (flashing amber, blinking green, or solid green). If the **RX** LED is OFF and the **TX** LED is not blinking amber, perform the following steps until it is on:
 - a. Check that the power is turned on for the device at the other end of the fiber optic cable.
 - b. Verify proper crossover of fiber strands between the applicable port on the 2M46-04R and the fiber optic device at the other end of the fiber optic cable.
 - c. Verify that the fiber connection meets the dB loss specifications outlined in the Cabletron Systems *Cabling Guide*.

If a link is not established, see [Chapter 4, Troubleshooting](#), before contacting the Cabletron Systems Global Call Center (refer to [Section 1.5](#), for details).

3.6 COMPLETING THE INSTALLATION

After installing the 2M46-04R and any optional Fast Ethernet Interface Modules and HSIMs as appropriate, and making the connections to the network, proceed as follows:

1. Secure the cables by running the cables along the strain-relief bracket and tying them to the strain-relief bracket using cable ties.
2. The 2M46-04R is now ready to be set up through Local Management. Refer to [Chapter 5, Local Management](#), for information on how to access and use Local Management to configure the 2M46-04R.

CHAPTER 4

TROUBLESHOOTING

This chapter provides information concerning the following:

- Using the LANVIEW diagnostic and status monitoring system
- Troubleshooting network and 2M46-04R operational problems
- Using the RESET button

4.1 USING LANVIEW

The 2M46-04R uses the Cabletron Systems built-in visual diagnostic and status monitoring system called LANVIEW. The LANVIEW LEDs (Figure 4-1) allow quick observation of the network status to aid in diagnosing network problems. Refer to Table 4-1 for a description of the LEDs.

For a functional description of the LANVIEW LED on the optional Fast Ethernet Interface Module (FE-100TX), refer to Section 4.2.

All LEDs for the High Speed Interface Module (HSIM) are located on the HSIM and are described in the associated HSIM user's guide.

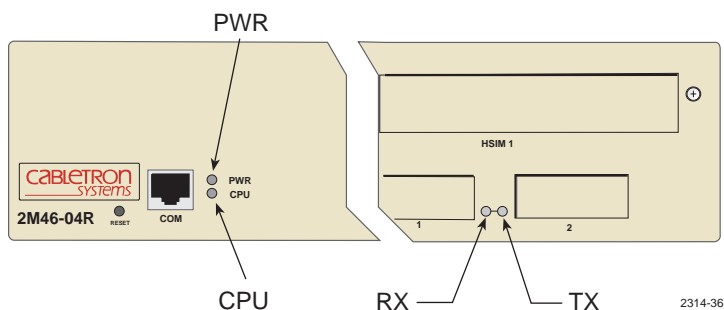


Figure 4-1 LANVIEW LEDs



The terms **flashing**, **blinking**, and **solid** used in the following tables indicate the following:

Flashing indicates an irregular LED pulse.

Blinking indicates a steady LED pulse (50% on, 50% off).

Solid indicates a steady LED light. No pulsing.

Table 4-1 LANVIEW LEDs

LED	Color	State	Recommended Action
PWR	Green	Functional. Power supply(ies) operating normally.	None.
	Amber	This indication only applies when there are two power supplies. Indicates loss of power supply redundancy.	1. Ensure that the power cords are plugged in correctly and that there is power at the power source. 2. Contact the Cabletron Systems Global Call Center (GCC).
CPU	Off	Power off.	Power up device.
	Red	Blinking. Hardware failure has occurred.	Contact the Cabletron Systems GCC.
		Solid. Resetting, normal power up reset.	None.
	Amber	Blinking. Crippled.	Contact the Cabletron Systems GCC.
		Solid. Testing.	None.
	Green	Solid. Functional.	None.
	Amber and Green	Booting. Alternately blinks amber and green while booting.	None.

Table 4-1 LANVIEW LEDs (Continued)

LED	Color	State	Recommended Action
RX (Receive)	Off	No link. No activity. Port enabled or disabled.	None.
	Green	Solid. Port enabled, link, no activity.	None.
		Blinking. Port disabled, link.	None.
	Amber	Flashing. Port enabled, link, activity.	None.
	Red	Diagnostic failure.	Contact the Cabletron Systems GCC.
TX (Transmit)	Off	Port enabled, and no activity. Should flash green every two seconds indicating BPDUs being sent if STA is enabled and there is a valid link.	1. Ensure that the STA is enabled and that there is a valid link. 2. Contact the Cabletron Systems GCC.
	Green	Flashing. Indicates activity. Rate indicates data rate.	None unless a high rate of collisions exist. If so, check network configuration.
	Green	Blinking. Port disabled, link.	None.
	Amber	Blinking. Port in standby. Port may be disabled due to Spanning Tree.	1. Ensure that the port is not disabled. 2. Contact the Cabletron Systems GCC.
	Red	Flashing. Indicates collision rate.	None.
		Solid. Diagnostic failure.	Contact the Cabletron Systems GCC.

4.2 FE-100TX LED

The optional FE-100TX has one LED labeled 10/100. The 10/100 LED together with the receive LED allows the user to determine the link status and the operating speed of the Fast Ethernet Interface Module. The 10/100 LED and the Receive (RX) LED are shown in Figure 4-2. Table 4-2 and Table 4-3 provide a functional description of the 10/100 LED when the RX LED is on or off, respectively.

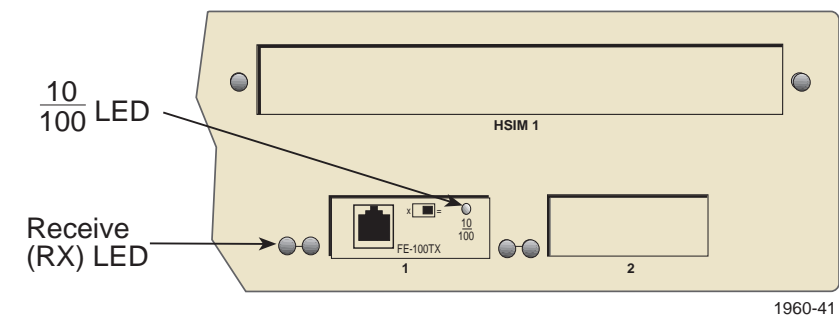
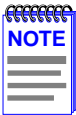


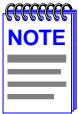
Figure 4-2 FE-100TX LED



A link exists if the associated port (1 or 2) RX (Receive) LED is on.

Table 4-2 10/100 LED Indications When RX LED Is On

LED	Color	Indication
10/100	Off	FE-100TX is operating at 10 Mbps.
	Green	FE-100TX is operating at 100 Mbps.



No link exists if the associated port (1 or 2) RX (Receive) LED is off.

Table 4-3 10/100 LED Indications When RX LED Is Off

LED	Color	Indication
10/100	Off	No link or no cable attached. FE-100TX forced to 10 Mbps operation, or is manually set to “auto-negotiate” mode.
	Green	No link or no cable attached. FE-100TX is forced to 100 Mbps operation.

4.3 TROUBLESHOOTING CHECKLIST

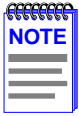
If the 2M46-04R is not working properly, refer to [Table 4-4](#) for a checklist of possible problems, causes, and recommended actions to resolve the problem.

Table 4-4 Troubleshooting Checklist

Problem	Possible Cause	Recommended Action
All LEDs are OFF.	Loss of power.	Check for proper connection of the power cable and its access to a live outlet.
	Installed improperly.	Check the installation.
No Local Management Password screen.	Autobaud is enabled.	Press ENTER (RETURN) (may take up to four times).
	Terminal setup is not correct.	Refer to Chapter 5 for proper setup procedures.
	Improper console cable used.	Refer to Appendix A for proper console port pinouts.
Cannot contact the device from in-band management.	Improper Community Names Table.	Refer to Chapter 5 for Community Names Table setup.
	IP address not assigned.	Refer to Chapter 5 for IP address assignment procedure.
	Port is disabled.	Enable port.
	No link to device.	Check link to device.
Port(s) goes into standby for no apparent reason.	Loop condition detected.	Review network design and delete unnecessary loops. Call the Cabletron Systems Global Call Center if the problem continues.
User parameters (IP address, Device and Module name, etc.) were lost when the 2M46-04R power was cycled or the front panel RESET button was pressed.	Mode switch (7), NVRAM Reset, was changed sometime before either cycling power or pressing the RESET button causing the user-entered parameters to reset to factory default settings.	Reenter the lost parameters as necessary. Call the Cabletron Systems Global Call Center if problem continues.

4.4 USING THE RESET BUTTON

The RESET button shown in [Figure 4-3](#) resets the 2M46-04R processor without affecting the NVRAM.



Clearing NVRAM may be performed via Local Management. [Section 5.7.11](#) describes this procedure. Additionally, NVRAM may be cleared by changing the position of mode switch 7 (Clear NVRAM) as described in [Appendix C](#). It is only necessary to use this method when it is not possible to access Local Management.



Pressing the RESET button resets the device and all current switching being performed by the device is halted. The 2M46-04R will be unavailable for up to two minutes as it boots up.

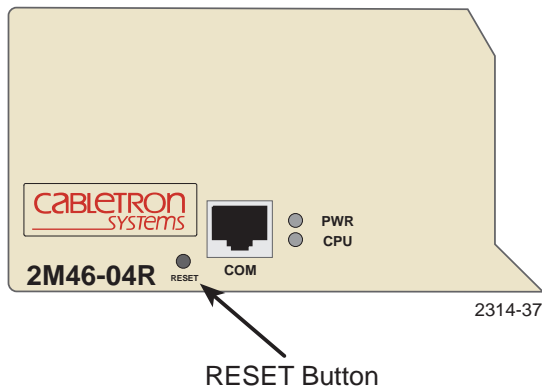


Figure 4-3 RESET Button

To reset the 2M46-04R processor, use a non-conductive tool to press and release the RESET button. The 2M46-04R goes through the reset process and then reenters the network.

CHAPTER 5

LOCAL MANAGEMENT

This chapter explains how to set up a management terminal to access Local Management. It also explains how to use the Local Management screens and commands.

5.1 OVERVIEW

Local Management for the 2M46-04R consists of a series of screens that allow the management of the 2M46-04R. The screens allow the user to do the following tasks:

- Assign IP address and subnet mask
- Select a default gateway
- Control access by establishing community names
- Download a new operation software image
- Designate which Network Management Workstations receive SNMP traps from the device
- View statistics
- Configure ports
- Control the number of receive broadcasts that are switched out to the other interfaces

There are three ways to access Local Management:

- Locally using a VT type terminal connected to the COM port
- Remotely using a VT type terminal connected through a modem
- In-band through a Telnet connection



If you have an HSI-M-W6 or HSI-M-W84 installed in your 2M46-04R, their Local Management screens can only be accessed via their respective ASYNC ports. See the associated HSI-M user's guides for more details.

5.2 LOCAL MANAGEMENT KEYBOARD CONVENTIONS

All key names appear as capital letters in this manual. [Table 5-1](#) explains the keyboard conventions and the key functions that are used.

Table 5-1 Keyboard Conventions

Key	Function
ENTER Key RETURN Key	These are selection keys that perform the same Local Management function. For example, “Press ENTER” means that you can press either ENTER or RETURN, unless this manual specifically instructs you otherwise.
ESCAPE (ESC) Key	This key allows an escape from a Local Management screen without saving changes. For example, “Press ESC twice” means the ESC key must be pressed quickly two times.
SPACE Bar BACKSPACE Key	These keys cycle through selections in some Local Management fields. Use the SPACE bar to cycle forward through selections and use BACKSPACE to cycle backward through selections.
Arrow Keys	These are navigation keys. Use the UP-ARROW, DOWN-ARROW, LEFT-ARROW, and RIGHT-ARROW keys to move the screen cursor. For example, “Use the arrow keys” means to press whichever arrow key moves the cursor to the desired field on the Local Management screen.
[–] Key	This key decreases values from a Local Management increment field. For example, “Press [–]” means to press the minus sign key.
DEL Key	The DEL (Delete) key removes characters from a Local Management field. For example, “Press DEL” means to press the Delete key.

5.3 MANAGEMENT TERMINAL SETUP

Use one of the following systems to access Local Management:

- An IBM or compatible PC running a VT series emulation software package
- A Digital Equipment Corporation VT100 type terminal
- A VT type terminal running emulation programs for the Digital Equipment Corporation VT100 series
- A remote VT100 type terminal via a modem connection
- In-Band via a Telnet connection

5.3.1 Console Cable Connection

Use the Console Cable Kit provided with the 2M46-04R to attach the management terminal to the 2M46-04R COM port as shown in [Figure 5-1](#).

Connect an IBM PC or compatible device, running the VT terminal emulation, to the 2M46-04R as follows:

1. Connect the RJ45 connector at one end of the cable (supplied in the kit) to the COM port on the 2M46-04R.
2. Plug the RJ45 connector at the other end of the cable into the RJ45-to-DB9 adapter (supplied in the kit).



If using a DEC VT style terminal for Local Management, use the DB25 adapter for this device instead of the DB9 adapter.

3. Connect the RJ45-to-DB9 adapter to the communications port on the PC.

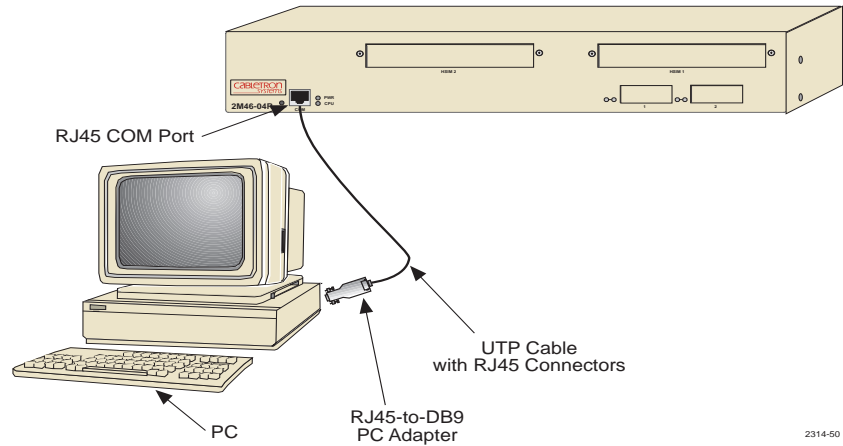


Figure 5-1 Management Terminal Connection

5.3.2 Management Terminal Setup Parameters

Table 5-2 lists the setup parameters for the local management terminal.

Table 5-2 VT Terminal Setup

Display Setup Menu	
Columns ->	80 Columns
Controls ->	Interpret Controls
Auto Wrap ->	No Auto Wrap
Scroll ->	Jump Scroll
Text Cursor ->	Cursor
Cursor Style ->	Underline Cursor Style
General Setup Menu	
Mode ->	VT100, 7 Bit Controls
ID number ->	VT100ID
Cursor Keys ->	Normal Cursor Keys
Power Supply ->	UPSS DEC Supplemental
Communications Setup Menu	
Transmit ->	2400, 4800, 9600, 19200
Receive ->	Receive=Transmit
XOFF ->	XOFF at 64
Bits ->	8 bits
Parity ->	No Parity
Stop Bit ->	1 Stop Bit
Local Echo ->	No Local Echo
Port ->	DEC-423, Data Leads Only
Transmit ->	Limited Transmit
Auto Answerback ->	No Auto Answerback
Keyboard Setup Menu	
Keys ->	Typewriter Keys
Auto Repeat ->	any option
Keyclick ->	any option
Margin Bell ->	Margin Bell
Warning Bell ->	Warning Bell

5.3.3 Telnet Connections

Once the 2M46-04R has a valid IP address, a Telnet session with Local Management can be established from any TCP/IP based station on the network. Telnet connections to the 2M46-04R require the passwords assigned at the SNMP Community Names screen. For additional information about these passwords, refer to [Section 5.8](#). Refer to the instructions included with the Telnet application for information about establishing a Telnet session.

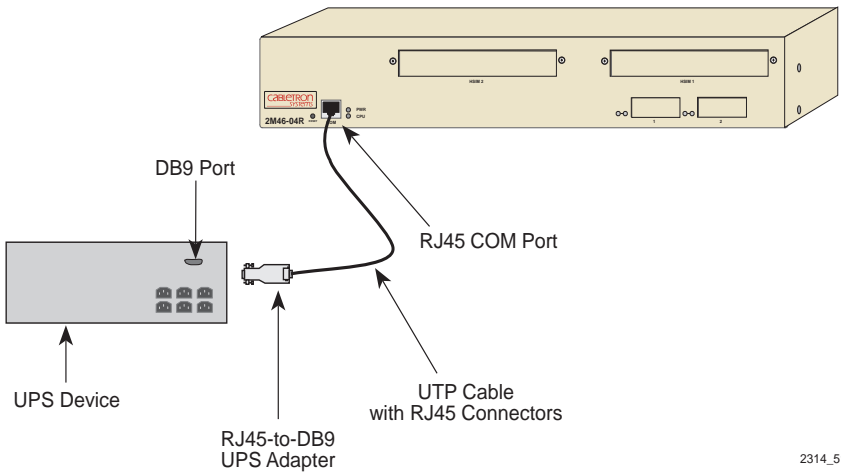
5.3.4 Connecting an Uninterruptible Power Supply

If the 2M46-04R is connected to an American Power Conversion (APC) Uninterruptible (UPS) device for power, a connection from the 2M46-04R COM port to the UPS can be made to monitor the power status of the UPS. To use the COM port for this purpose, it must be reconfigured to support the UPS connection using the local management screen, General Configuration, as described in [Section 5.7.10](#). Refer to the UPS documentation for details on how to access the status information.

Use the Console Cable Kit provided with the 2M46-04R to attach the UPS to the 2M46-04R COM port as shown in [Figure 5-2](#).

Connect the UPS device to the COM port of the 2M46-04R as follows:

1. Connect the RJ45 connector at one end of the cable to the COM port on the 2M46-04R.
2. Plug the RJ45 connector at the other end of the cable into the RJ45-to-DB9 male (UPS) adapter.
3. Connect the RJ45-to-DB9 male (UPS) adapter to the female DB9 port on the rear of the UPS device (see the particular UPS device's user instructions for more specific information about the monitoring connection).



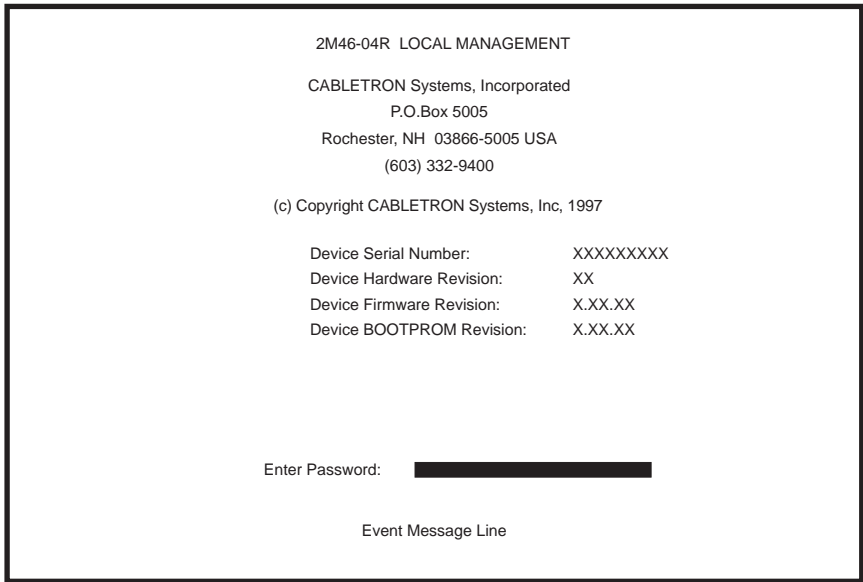
2314_51

Figure 5-2 Uninterruptible Power Supply (UPS) Connection

5.4 ACCESSING LOCAL MANAGEMENT

Access to Local Management is controlled through the Password screen shown in Figure 5-3. Whenever a connection is made to the 2M46-04R the Password screen displays. Before continuing, the user must enter a password (community name) which is compared to the previously stored passwords. The level of access allowed the user depends on the password. To set or change passwords refer to Section 5.8. The following steps describe the procedure to access Local Management.

- 1. Turn on the terminal. Press ENTER (up to four times) until the 2M46-04R Local Management Password screen displays (Figure 5-3).



2314-12

Figure 5-3 Local Management Password Screen

- 2. Enter the Password and press ENTER. The default super-user access password is “public” or press ENTER.



The user’s password is one of the community names specified in the SNMP Community Names screen. Access to certain Local Management capabilities depends on the degree of access accorded that community name. Refer to Section 5.8.

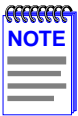
- If an invalid password is entered, the terminal beeps and the cursor returns to the beginning of the password entry field.
- Entering a valid password causes the associated access level to display at the bottom of the screen and the Device Menu screen to appear.
- If no activity occurs for several minutes, the Password screen redisplay and the password has to be reentered.

5.4.1 Navigating Local Management Screens

The 2M46-04R Local Management consists of a series of menu screens. Navigate through Local Management by selecting items from the menu screens.

The 2M46-04R supports three modes of switch operation. The switching modes are as follows:

- 802.1D Switching (traditional switching)
- 802.1Q Switching (port based switching)
- SecureFast VLAN (Cabletron Systems SecureFast switching)



Refer to the Release Notes shipped with the product to verify which screens are supported in each of the three available switching modes.

Depending on the Operational Mode set for the device, the hierarchy of the Local Management screens differ as shown in [Figure 5-4](#), [Figure 5-5](#), and [Figure 5-6](#). Refer to the appropriate figure that relates to the Operational Mode set for the device to see the applicable Local Management screen hierarchy.

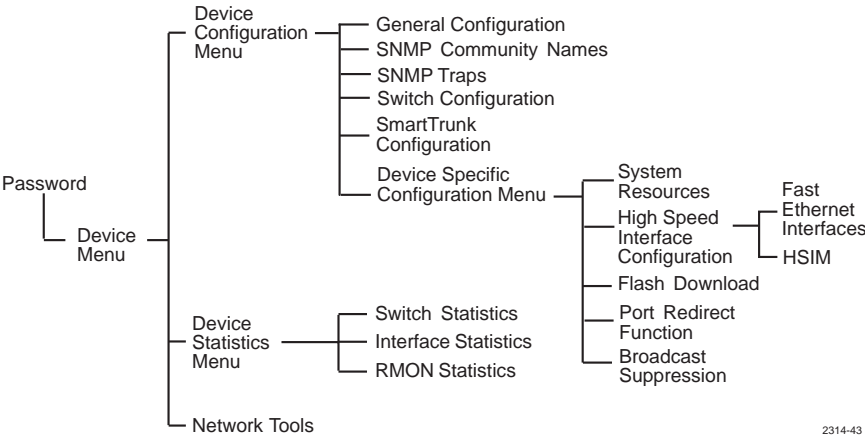


Figure 5-4 802.1D Switching Mode, LM Screen Hierarchy

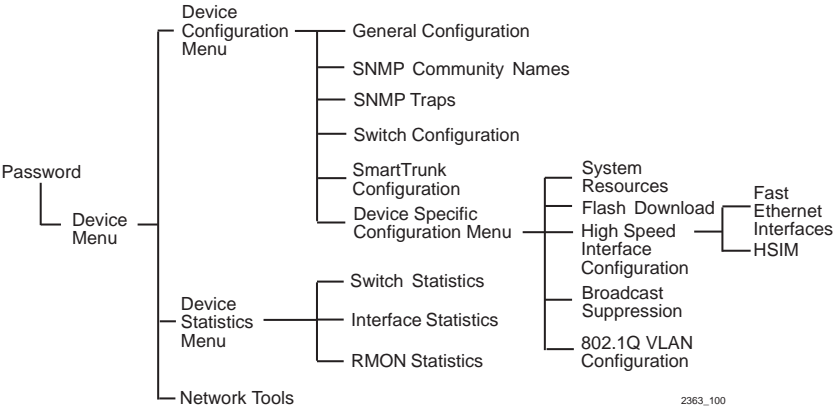


Figure 5-5 802.1Q Switching Mode, LM Screen Hierarchy

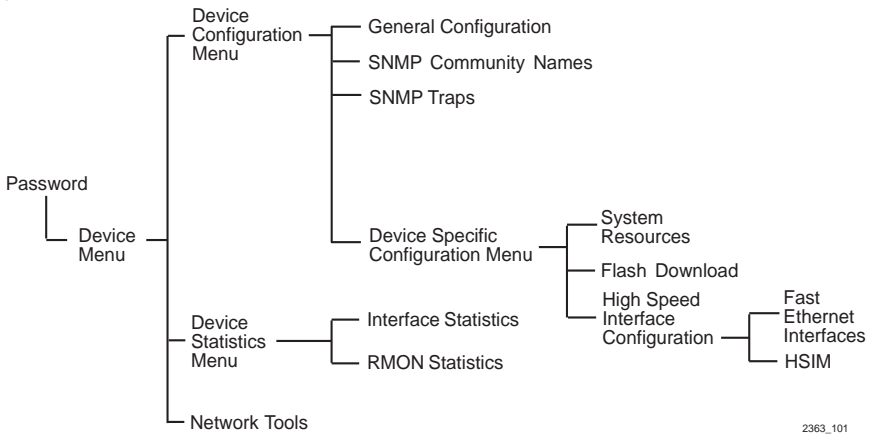


Figure 5-6 SecureFast VLAN Mode, LM Screen Hierarchy

5.4.2 Selecting Local Management Menu Screen Items

Select items on a menu screen by performing the following steps:

1. Use the arrow keys to highlight a menu item.
2. Press ENTER. The selected menu item displays on the screen.

5.4.3 Exiting Local Management Screens

There are two ways to exit the Local Management (LM) screens.

Using the Exit Command

To exit LM using the EXIT screen command, proceed as follows:

1. Use the arrow keys to highlight the **EXIT** command at the bottom of the Local Management screen.
2. Press ENTER. The Password screen displays and the session ends.

Using the RETURN Command

To exit LM using the RETURN command, proceed as follows:

1. Use the arrow keys to highlight the **RETURN** command at the bottom of the Local Management screen.
2. Press ENTER. The previous screen in the Local Management hierarchy displays.

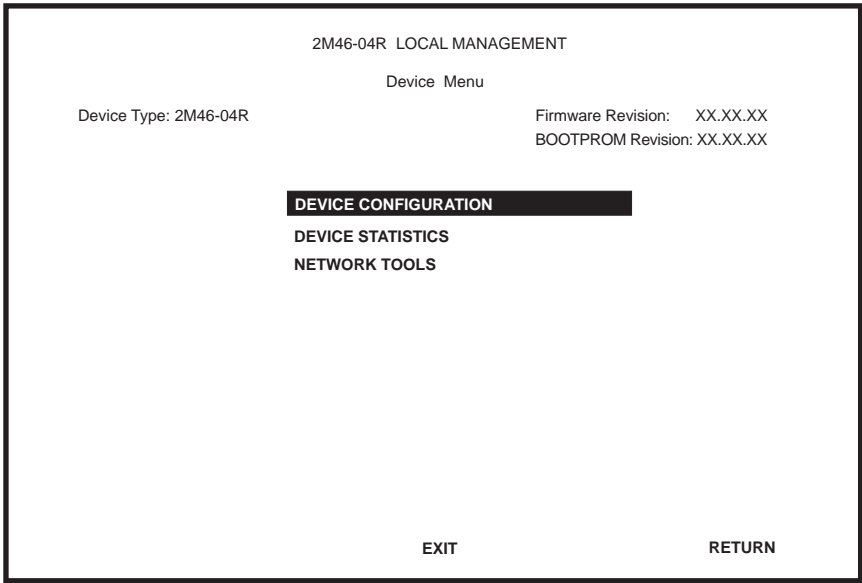


The user can also exit Local Management screens by pressing ESC twice. This exit method does not warn about unsaved changes and all unsaved changes will be lost.

- 3. Exit from 2M46-04R Local Management by repeating steps 1 and 2 until the Device Menu screen displays.
- 4. To end the LM session, use the arrow keys to highlight the **RETURN** command at the bottom of the Device Menu screen.
- 5. Press ENTER. The Password screen displays and the session ends.

5.5 DEVICE MENU SCREEN

The Device Menu screen is the access point for all Local Management screens. Figure 5-7 shows the Device Menu screen.



2314-13

Figure 5-7 Device Menu Screen



If the terminal is idle for a modifiable period of time, the Password screen redisplay and the session ends.

The following explains each Device Menu screen field as shown in [Figure 5-7](#):

DEVICE CONFIGURATION

The Device Configuration screen provides access to the Local Management screens that are used to configure the 2M46-04R and also to the Device Specific Configuration menu screen. The Device Specific Configuration menu screen provides access to the screens that allow the user to check the 2M46-04R resources and set operating parameters specific to each port. For details about the Device Configuration Menu screen, refer to [Section 5.6](#). For details about the Device Specific Configuration menu screen, refer to [Section 5.11](#).

DEVICE STATISTICS

The Device Statistics screen provides statistics and performance information for the 2M46-04R. For details about this screen, refer to [Section 5.18](#).

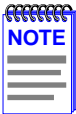
NETWORK TOOLS

The Network Tools function resides on the 2M46-04R and consists of a series of commands that allow the user to access and manage network devices. [Section 5.22](#) explains how to use the Network Tools utility.

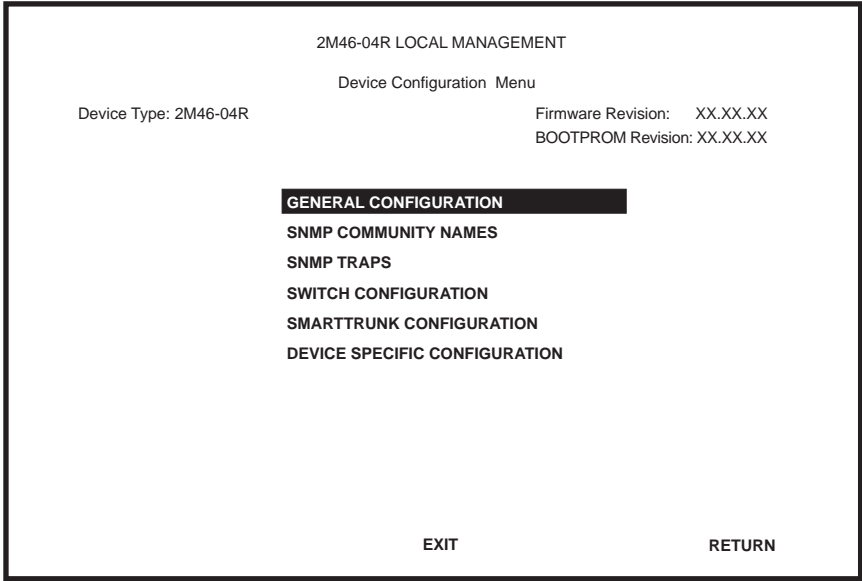
5.6 DEVICE CONFIGURATION MENU SCREEN

The Device Configuration Menu screen, [Figure 5-8](#), provides access to Local Management screens that allow you to configure and monitor operating parameters, modify SNMP community names, set SNMP traps, configure switch parameters, and configure 2M46-04R ports.

To access the Device Configuration Menu screen from the Device Menu screen, use the arrow keys to highlight the **DEVICE CONFIGURATION** menu item and press ENTER. The Device Configuration Menu screen displays.



The Switch Configuration menu will only display if the operational mode of the device has been set to 802.1D SWITCHING or 802.1Q SWITCHING. Refer to [Section 5.7.9](#) for instructions on configuring the device to operate in this mode.



2314_66

Figure 5-8 Device Configuration Menu Screen

The following briefly explains each screen accessible from the Device Configuration Menu screen:

GENERAL CONFIGURATION

The General Configuration screen allows the user to monitor and configure operating parameters for the 2M46-04R. For details, refer to [Section 5.7](#).

SNMP COMMUNITY NAMES

The SNMP Community Names screen allows the user to enter new, change, or review the community names used as access passwords for device management operation. Access is limited based on the password level of the user. For details, refer to [Section 5.8](#).

SNMP TRAPS

The SNMP Traps screen provides display and configuration access to the table of IP addresses used for trap destinations and associated community names. For details, refer to [Section 5.9](#).

SWITCH CONFIGURATION

The Switch Configuration screen provides the basic setup options for customizing switch operations. For details, refer to [Section 5.10](#).

SMARTTRUNK CONFIGURATION

The SmartTrunk Configuration screen allows the user to logically group interfaces together to aggregate high speed uplinks. Refer to the Cabletron Systems *SmartTrunk User's Guide* for additional information.

DEVICE SPECIFIC CONFIGURATION

The Device Specific Configuration menu screen allows the user to select screens to configure ports or check system resources specific to the 2M46-04R. For details, refer to [Section 5.11](#).

5.7 GENERAL CONFIGURATION SCREEN

The General Configuration screen, [Figure 5-9](#), allows the user to, among other things, set the system date and time, IP address and subnet mask, the default gateway, the TFTP gateway IP address, the operational mode, and the COM port configuration.

To access the General Configuration screen from the Device Configuration Menu screen, use the arrow keys to highlight the **GENERAL CONFIGURATION** menu item and press ENTER. The General Configuration screen displays.

Event Message Line

2M46-04R LOCAL MANAGEMENT

General Configuration

Device Type: 2M46-04R

Firmware Revision: XX.XX.XX
BOOTPROM Revision: XX.XX.XX

MAC Address: 00-00-ID-00-00-00
IP Address: 0.0.0.0
Subnet Mask: 0.0.0.0
Default Gateway: NONE DEFINED
TFTP Gateway IP Addr: 0.0.0.0

Device Date: 11/29/97
Device Time: 14:23:00
Screen Refresh Time: 03 sec.
Screen Lockout Time: 15 min.
Device Uptime XX D XX H XX M

Operational Mode: [802.1D SWITCHING]

Com 1: [ENABLED]

Application: [LM]

Clear NVRAM: [NO]

IP Fragmentation [ENABLED]

SAVE

EXIT

RETURN

2314-15

Figure 5-9 General Configuration Screen

The following briefly explains each General Configuration screen field:

MAC Address (Read-Only)

Displays the base physical address of the 2M46-04R.

IP Address (Modifiable)

Displays and allows the user to set the IP address for the 2M46-04R. To set the IP address, refer to [Section 5.7.1](#). The IP address can also be set through Runtime IP Address Discovery as previously described in [Section 1.3.5](#).

Subnet Mask (Modifiable)

Displays the subnet mask for the 2M46-04R. A subnet mask “masks out” the network bits of the IP address by setting the bits in the mask to 1 when the network treats the corresponding bits in the IP address as part of the network or subnetwork address, or to 0 if the corresponding bit identifies the host. For details about how to change the subnet mask from its default value, refer to [Section 5.7.2](#).

Default Gateway (Modifiable)

Displays the default gateway for the 2M46-04R. This field is not defined until an appropriate value is entered. For details about why and how to set the default gateway, refer to [Section 5.7.3](#).

TFTP Gateway IP Addr (Modifiable)

Displays and allows the user to set the TFTP gateway IP address for the 2M46-04R. To set the TFTP gateway IP address, refer to [Section 5.7.4](#).

Device Date (Modifiable)

Contains a value that the device recognizes as the current date. To set a new device date, refer to [Section 5.7.5](#).

Device Time (Modifiable)

Contains a value that the device recognizes as the current time. To enter a new time, refer to [Section 5.7.6](#).

Screen Refresh Time (Modifiable)

Contains the rate at which the screens are updated. This setting determines how frequently (in seconds) information is updated on the screen. To enter a new update time, refer to [Section 5.7.7](#).

Screen Lockout Time (Modifiable)

Contains the maximum number of minutes that the Local Management application displays a module’s screen while awaiting input or action from a user. For example, if the number 5 is entered in this field, the user has up to five minutes to respond to each of the specified module’s Local Management screens.

In this example, after five minutes of “idleness” (no input or action), the terminal “beeps” five times, the Local Management application terminates the session, and the display returns to the Password screen. To enter a new lockout time, refer to [Section 5.7.8](#).

Device Uptime (Read-Only)

Displays the total time that the device has been operating.

Operational Mode (Modifiable)

This field allows the user to set the 2M46-04R to operate as a traditional switch (802.1D SWITCHING), an IEEE 802.1Q switch (802.1Q SWITCHING), or as a Cabletron Systems SecureFast switch (SECURE FAST VLAN).

In 802.1D SWITCHING mode, the Fast Ethernet Interface Module(s), and HSIM port(s) are bridged to each other.

In 802.1Q SWITCHING mode, the 2M46-04R acts as a IEEE 802.1Q switch which allows the creation of port-based VLANs.

When the operational mode is set to SECURE FAST VLAN, the 2M46-04R acts as a SecureFast switch. The 2M46-04R is able to increase its switching functionality by creating and maintaining Virtual LANs (VLANs).

For details on how to select the Operational Mode, refer to [Section 5.7.9](#).

Com 1 (Toggle)

This field allows the user to enable or disable the COM port. The selection toggles between ENABLED and DISABLED. The default is ENABLED. For details about setting up the COM port, refer to [Section 5.7.10](#).

Application (Toggle)

Displays the application set for the COM port. This field allows the user to set the application that the COM port supports. The field toggles between LM (Local Management) and UPS (Uninterruptible Power Supply).

The UPS setting allows the COM port to be used to monitor an American Power Conversion Smart Uninterruptible Power Supply (UPS).

The baud rate setting for LM is automatically sensed. For UPS connections, the baud rate is automatically set to 2400.

The default setting is LM. For details about how to configure the COM port for various applications, refer to [Section 5.7.10](#).

Clear NVRAM (Toggle)

This allows the user to reset NVRAM to the factory default settings. All user-entered parameters, such as IP address and community names, are then replaced with 2M46-04R default configuration settings. For details, refer to [Section 5.7.11](#).

IP Fragmentation (Toggle)

This field, which only displays if an HSI-M-F6 is installed in the 2M46-04R, allows the user to enable or disable IP Fragmentation. The default setting for this is field is ENABLED. If traffic from the 2M46-04R is to be bridged to an FDDI ring, IP Fragmentation should be enabled. If IP Fragmentation is disabled, all FDDI frames that exceed the maximum Ethernet frame size will be discarded. For details on enabling IP Fragmentation, refer to [Section 5.7.12](#).

5.7.1 Setting the IP Address

To set the IP address, perform the following steps:

1. Use the arrow keys to highlight the **IP Address** field.
2. Enter the IP address into this field using Dotted Decimal Notation (DDN) format.

For example: 134.141.79.120

3. Press ENTER. If the IP address is a valid format, the cursor returns to the beginning of the IP address field. If the entry is not valid, the Event Message Line displays “INVALID IP ADDRESS OR FORMAT ENTERED”. Local Management does not alter the current value and refreshes the IP address field with the previous value.
4. Use the arrow keys to highlight the **SAVE** command, then press ENTER. The warning screen shown in [Figure 5-10](#) displays.

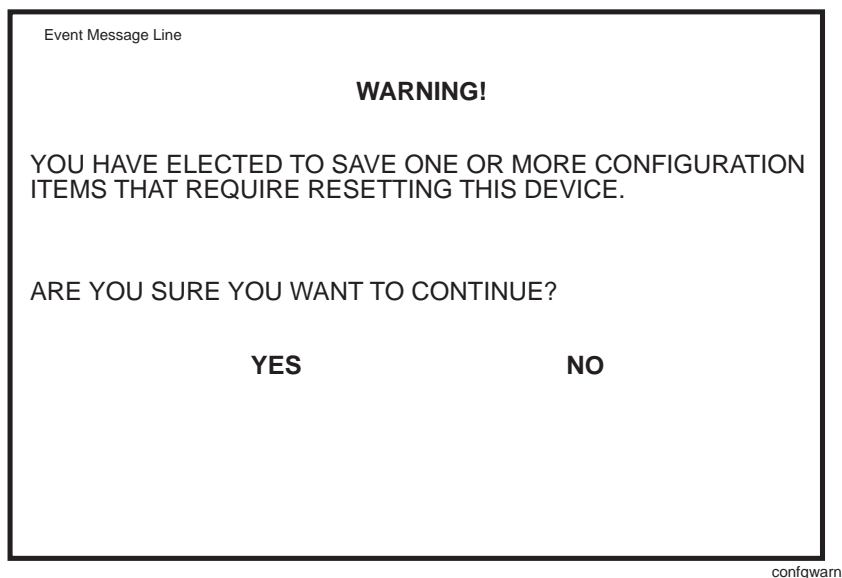


Figure 5-10 Configuration Warning Screen

5. Use the arrow keys to highlight the **YES** command and press ENTER. The changes are saved and the device reboots.

5.7.2 Setting the Subnet Mask

If the management workstation that is to receive SNMP traps from the 2M46-04R is located on a separate subnet, the subnet mask for the 2M46-04R may need to be changed from its default.

To change the subnet mask from its default, perform the following steps:

1. Use the arrow keys to highlight the **Subnet Mask** field.
2. Enter the subnet mask into this field using Dotted Decimal Notation (DDN) format.

For example: 255.255.0.0
3. Press ENTER. If the subnet mask is valid, the cursor returns to the beginning of the Subnet Mask field. If the entry is not valid, the Event Message Line displays “INVALID SUBNET MASK OR FORMAT ENTERED”. Local Management does not alter the current value, but it does refresh the Subnet Mask field with the previous value.

4. Use the arrow keys to highlight the **SAVE** command, then press ENTER. The warning screen shown back in [Figure 5-10](#) displays.
5. Use the arrow keys to highlight the **YES** command and press ENTER. The changes are saved and the device reboots.

5.7.3 Setting the Default Gateway

If the SNMP management station is located on a different IP subnet than the 2M46-04R, a default gateway must be specified. When an SNMP Trap is generated, the 2M46-04R sends the trap to the default gateway. To set the default gateway, perform the following steps:

1. Use the arrow keys to highlight the **Default Gateway** field.
2. Enter the IP address of the default gateway using the DDN format.
For example: 134.141.79.121
3. Press ENTER. If the default gateway entered is a valid format, the cursor returns to the beginning of the Default Gateway field. If the entry is not valid, the Event Message Line displays “INVALID DEFAULT GATEWAY OR FORMAT ENTERED”. Local Management does not alter the current value, but it does refresh the Default Gateway field with the previous value.
4. Use the arrow keys to highlight the **SAVE** command.
5. Press ENTER. The Event Message Line at the top of the screen displays “SAVED OK”.

5.7.4 Setting the TFTP Gateway IP Address

If the network TFTP server is located on a different IP subnet than the 2M46-04R, a gateway IP address should be specified. To set the TFTP gateway IP address, perform the following steps:

1. Use the arrow keys to highlight the **TFTP Gateway IP Addr** field.
2. Enter the IP address of the TFTP gateway using the DDN format.
For example: 134.141.80.122

3. Press ENTER. If the TFTP gateway IP address entered is a valid format, the cursor returns to the beginning of the TFTP Gateway IP Address field. If the entry is not valid, the Event Message Line displays “INVALID TFTP GATEWAY IP ADDRESS OR FORMAT ENTERED”. Local Management does not alter the current value, but it does refresh the TFTP Gateway IP Address field with the previous value.
4. Use the arrow keys to highlight the **SAVE** command.
5. Press ENTER. The Event Message Line at the top of the screen displays “SAVED OK”.

5.7.5 Setting the Device Date

The 2M46-04R is year 2000 compliant so that the Device Date field can be set beyond the year 1999. To set the system date, perform the following steps:

1. Use the arrow keys to highlight the **Device Date** field.
2. Enter the date in this format: MM/DD/YYYY



It is not necessary to add separators between month, day, and year numbers, as long as each entry uses two numeric characters. For example, to set the date to 08/29/1997, type “08291997” in the Device Date field.

3. Press ENTER to set the Device Date to the date in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the date entered is a valid format, the Event Message Line at the top of the screen displays “SAVED OK”. If the entry is not valid, Local Management does not alter the current value, but it does refresh the Device Date field with the previous value.

5.7.6 Setting the Device Time

To set the device time, perform the following steps:

1. Use the arrow keys to highlight the **Device Time** field.
2. Enter the time in this 24-hour format: HH:MM:SS



When entering the time in the system time field, separators between hours, minutes, and seconds are not needed as long as each entry uses two numeric characters. For example, to set the time to 6:45 A.M., type "064500" in the Device Time field.

3. Press ENTER to set the Device Time to the time in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the time entered is a valid format, the Event Message Line at the top of the screen displays "SAVED OK". If the entry is not valid, Local Management does not alter the current value and refreshes the Device Time field with the previous value.

5.7.7 Entering a New Screen Refresh Time

The screen refresh time is set from 3 to 99 seconds with a default of 3 seconds. To set a new screen refresh time, perform the following steps:

1. Use the arrow keys to highlight the **Screen Refresh Time** field.
2. Enter a number from 3 to 99.
3. Press ENTER to set the refresh time to the time entered in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the time entered is within the 3 to 99 seconds range, the Event Message Line at the top of the screen displays "SAVED OK". If the entry is not valid, Local Management does not alter the current setting, but it does refresh the Screen Refresh Time field with the previous value.

5.7.8 Setting the Screen Lockout Time

The screen lockout time can be set from 1 to 30 minutes with a default of 15 minutes. To set a new lockout time, perform the following steps:

1. Use the arrow keys to highlight the **Screen Lockout Time** field.
2. Enter a number from 1 to 30.
3. Press ENTER to set the lockout time in the input field.
4. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen and press ENTER.

If the time entered is within the 1 to 30 minutes range, the Event Message Line at the top of the screen displays “**SAVED OK**”. If the entry is not valid, Local Management does not alter the current setting, but it does refresh the Screen Lockout Time field with the previous value.

5.7.9 Setting the Operational Mode



If the device is to be configured to operate as a SecureFast switch, the device must be assigned an IP address that has been saved (i.e., the device has rebooted and the new IP address is active).

To set the Operational Mode, proceed as follows:

1. Use arrow keys to highlight the **Operational Mode** field.
2. Press the SPACE bar to step to the appropriate operation mode (**802.1D SWITCHING**, **802.1Q SWITCHING** or **SECURE FAST VLAN**).
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen, then press ENTER. The warning screen shown back in [Figure 5-10](#) displays.
4. Use the arrow keys to highlight the **YES** command and press ENTER. The changes are saved and the device reboots.



If the 2M46-04R has been set to **SECURE FAST VLAN**, refer to your SecureFast documentation set to configure the device for this type of operation.

If the 2M46-04R has been set to **802.1Q SWITCHING**, refer to the Cabletron Systems *Port Based VLAN User's Guide*.

5.7.10 Configuring the COM Port

Upon power up, the COM port is configured to the default settings of **ENABLED** and **LM**.



Before altering the COM port settings, ensure that a valid IP address is set. Refer to [Section 5.7.1](#). Read this entire COM port configuration section before altering the COM port settings.

The 2M46-04R COM port supports the following applications:

- Local Management connections
- American Power Conversion Uninterruptible Power Supply (UPS) connections

To configure the COM port, proceed as follows:

1. Use the arrow keys to highlight the **Com 1** field.

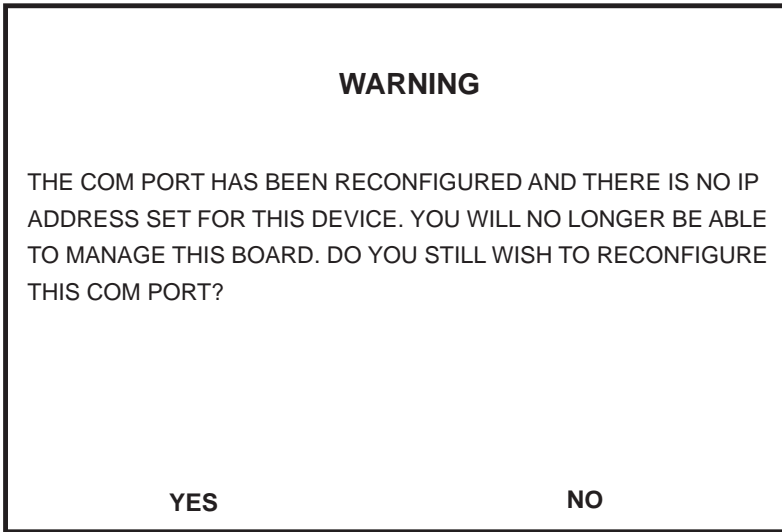


Do **NOT** disable or alter the settings of the COM port while operating the current Local Management connection through a terminal. Altering the COM port settings disconnects the Local Management terminal from the port, and ends the Local Management session. If the 2M46-04R was previously assigned a valid IP address, reenter Local Management by establishing a Telnet connection to the device. If the device does not have a valid IP address and the COM port has been disabled or the settings changed, reset NVRAM on the 2M46-04R (refer to [Appendix C](#)) to reestablish COM port communications.

2. Press the SPACE bar to choose either **ENABLED** or **DISABLED**. **ENABLED** allows the COM port to be connected to the terminal and used for a particular application. **DISABLED** disables the COM port connection to the terminal.



If the COM port is configured without a valid IP address, the screen shown in [Figure 5-11](#) displays. Do not continue unless the outcome of the action is fully understood. If the Warning screen displays, continue on to step 3, otherwise, proceed to step 4.



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Figure 5-11 COM Port Warning Screen

3. Use the arrow keys to highlight **YES**. Press ENTER.
4. If you **ENABLED** the port, proceed to step 5. If you **DISABLED** the port, use the arrow keys to highlight **SAVE** at the bottom of the screen, then press ENTER.
5. When the message “**SAVED OK**” appears, the edits you made are saved.



Exiting without saving causes the message “**NOT SAVED -- PRESS SAVE TO KEEP CHANGES**” to appear. Exiting without saving causes all edits to be lost.

5.7.10.1 Changing the COM Port Application

After enabling the COM port as described in [Section 5.7.10](#), you can select one of the applications supported by the COM port: LM or UPS. The default application is LM.

To change the COM port application:

1. Use the arrows keys to highlight the **Application** field.

2. Use the SPACE bar or BACKSPACE to step through the available settings until the operation you require displays. [Table 5-3](#) lists the available settings and their corresponding applications.

Table 5-3 COM Port Application Settings

Setting	Application
LM	Local Management Session
UPS	APC Power Supply SNMP Proxy

3. Press ENTER to accept the application.



When the COM port is configured to perform the UPS application, all future LM connections must be made by a Telnet connection. Ensure that the device has a valid IP address before saving changes to the COM port application. If the device does not have a valid IP address and the changes are saved, refer to [Appendix C](#) for instructions on clearing NVRAM in order to reestablish COM port communications.

4. Use the arrow keys to highlight **SAVE** at the bottom of the screen, then press the ENTER key. When the message “SAVED OK” displays, the edits are saved.



When the COM port is configured to perform the UPS application, all future Local Management connections must be made by establishing a Telnet connection to the device. Ensure that the device has a valid IP address before saving changes to the COM port application. If the device does not have a valid IP address and the changes are saved, refer to [Appendix C](#) for instructions on clearing NVRAM in order to reestablish COM port communications.

5.7.11 Clearing NVRAM

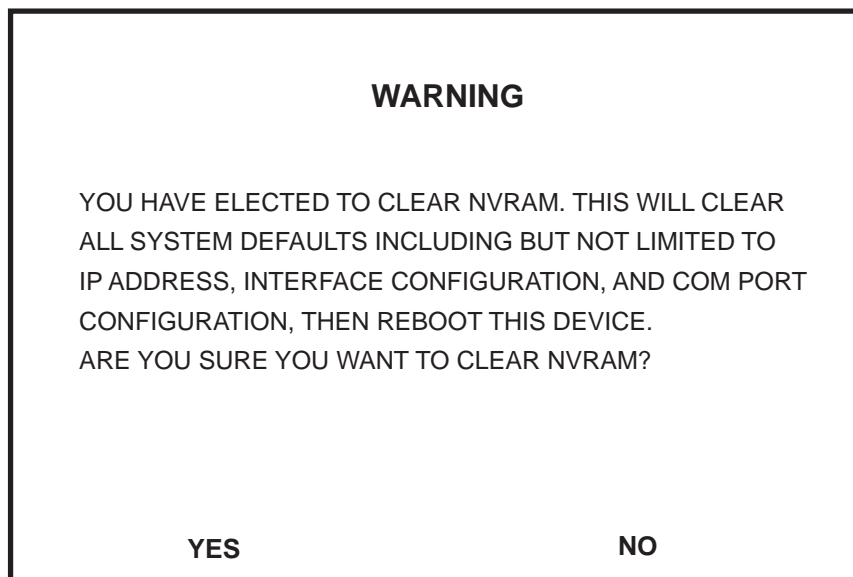


Clearing NVRAM will result in the loss of all user-entered parameters. Do not proceed unless this procedure is completely understood.

Clearing NVRAM allows the user to clear all user-entered parameters, such as, the IP address and Community Names from NVRAM.

Clear NVRAM as follows:

1. Use the arrow keys to highlight the **Clear NVRAM** field.
2. Use the SPACE bar to toggle the field to **YES**.
3. Use the arrow keys to highlight **SAVE** at the bottom of the screen.
4. Press ENTER. The warning shown in [Figure 5-12](#) displays.
5. Use the arrow keys to highlight **YES** and press ENTER. The message “CLEARING NVRAM. REBOOT IN PROGRESS...” displays. The 2M46-04R clears NVRAM and reboots. All user-entered parameters default to factory default settings.



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Figure 5-12 Clear NVRAM Warning Screen

5.7.12 Enabling/Disabling IP Fragmentation

To enable or disable IP fragmentation, proceed as follows:

1. Use the arrow keys to highlight the **IP Fragmentation** field.
2. Press the SPACE bar to choose either **ENABLED** or **DISABLED**.
3. Use the arrow keys to highlight the **SAVE** command.
4. Press ENTER. "SAVED OK" displays in the Event Message Line at the top of the screen.



If the 2M46-04R is being bridged to an FDDI ring via an optional HSI-M-F6, IP Fragmentation should be enabled. If IP Fragmentation is disabled, all FDDI frames that exceed the maximum Ethernet frame size will be discarded.

5.8 SNMP COMMUNITY NAMES SCREEN

The SNMP Community Names option allows the user to set SNMP Management community names. Community names act as passwords to Local/Remote Management and are agents of security access to the 2M46-04R. Access to the 2M46-04R is controlled by enacting any of three different levels of security authorization (read-only, read-write, and super-user).



Super-user access gives the user full management privileges, allows existing passwords to be changed, and all modifiable MIB objects for the Cabletron Container MIB and Internet MIB-II to be edited.

To access the SNMP Community Names screen from the Device Configuration Menu screen, use the arrow keys to highlight the **SNMP COMMUNITY NAMES** menu item and press ENTER. The SNMP Community Names screen displays.

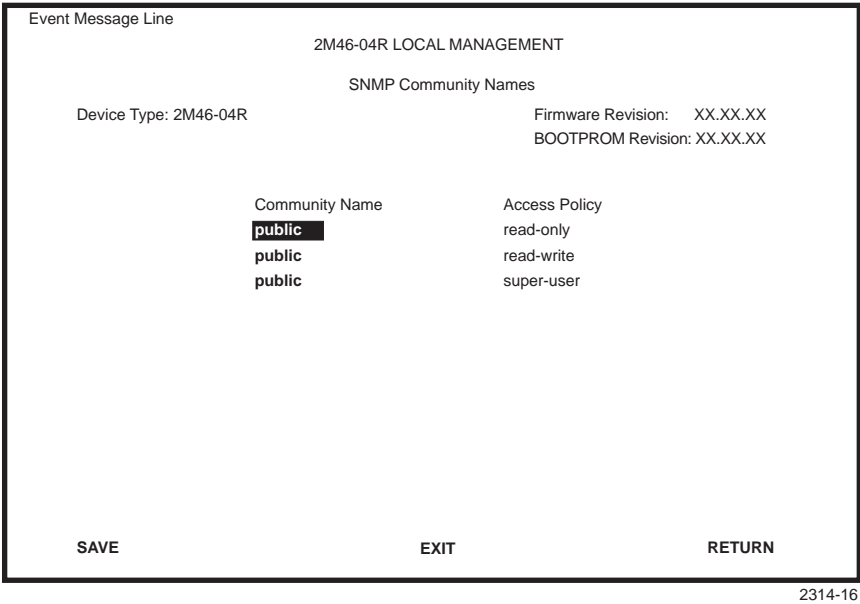


Figure 5-13 SNMP Community Names Screen

The following explains each SNMP Community Names screen field:

Community Name (Modifiable)

Displays the user-defined name through which a user accesses the 2M46-04R SNMP Management. Any community name assigned here acts as a password to Local/Remote Management.

Access Policy (Read-Only)

Indicates the access accorded each community name. Possible selections are as follows:

- | | |
|------------|--|
| read-only | This community name gives the user read-only access to the 2M46-04R MIB objects, and excludes access to security-protected fields of read-write or super-user authorization. |
| read-write | This community name gives the user read-write access to the 2M46-04R MIB objects, excluding security protected fields for super-user access only. |

super-user

This community name gives the user read-write access to the 2M46-04R MIB objects and allows the user to change all modifiable parameters including community names, IP addresses, traps, and SNMP objects.

5.8.1 Establishing Community Names

The password used to access Local Management at the Password Screen must have super-user access to view and edit the SNMP Community Names screen. Using a password with read-only or read-write access does not allow the user to view or edit the SNMP Community Names screen.



Any community name assigned in the SNMP Community Names screen is a password to its corresponding level of access to Local/Remote Management. The community name assigned super-user access is the only one that gives the user complete access to Local/Remote Management.

To establish community names, proceed as follows:

1. Use the arrow keys to highlight the **Community Name** field adjacent to the selected access level.
2. Enter the password in the field (maximum 31 characters).
3. Press ENTER.
4. Repeat steps 1 through 3 to modify the other community names.
5. Use the arrow keys to highlight **SAVE** at the bottom of the screen and press ENTER. The message “SAVED OK” displays. The community names are saved to memory and their access modes implemented.



Exiting without saving causes a “NOT SAVED?” message to display above the **SAVE** command. Edits will be lost if they are not saved before exiting.

5.9 SNMP TRAPS SCREEN

Since the 2M46-04R is an SNMP compliant device, it can send messages to multiple Network Management Stations to alert users of status changes. The SNMP Traps screen is shown in Figure 5-14.

To access the SNMP Traps screen from the Device Configuration Menu screen, use the arrow keys to highlight the **SNMP TRAPS** menu item and press ENTER. The SNMP Traps screen displays.

Event Message Line

2M46-04R LOCAL MANAGEMENT

SNMP Traps

Device Type: 2M46-04R

Firmware Revision: XX.XX.XX

BOOTPROM Revision: XX.XX.XX

Trap Destination	Trap Community Name	Enable Traps
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]
0.0.0.0	public	[NO]

SAVE

EXIT

RETURN

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Figure 5-14 SNMP Traps Screen

The following explains each field of the SNMP Traps screen:

Trap Destination (Modifiable)

Indicates the IP address of the workstation to receive trap alarms. Up to eight different destinations can be defined.

Trap Community Name (Modifiable)

Displays the community name included in the trap message sent to the Network Management Station with the associated IP address.

Enable Traps (Toggle)

Enables transmission of the traps to the network management station with the associated IP address. This field toggles between YES and NO.

5.9.1 Configuring the Trap Table

To configure the Trap table, proceed as follows:

1. Use the arrow keys to highlight the appropriate **Trap Destination** field.
2. Enter the IP address of the workstation that is to receive traps. IP address entries must follow the DDN format.

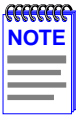
For example: 134.141.79.121
3. Press ENTER. If an invalid value is entered “INVALID IP ENTERED” is displayed in the Event Message Line.
4. Use the arrow keys to highlight the **Trap Community Name** field. Enter the community name.
5. Press ENTER.
6. Use the arrow keys to highlight the **Enable Traps** field. Press the SPACE bar to choose either **YES** (send alarms from the 2M46-04R to the workstation), or **NO** (prevent alarms from being sent).
7. Use the arrow keys to highlight the **SAVE** command and press ENTER. The message “SAVED OK” displays on the screen.
8. To exit the screen, use the arrow keys to highlight **RETURN** and press ENTER.



Link traps may be disabled by using Network Tools. See Section 5.22 for more details.

The designated workstations now receive traps from the 2M46-04R.

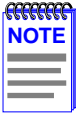
5.10 SWITCH CONFIGURATION SCREEN



The Switch Configuration screen will only display if the operational mode of the device has been set to 802.1D SWITCHING or 802.1Q SWITCHING. Refer to [Section 5.7.9](#) for instructions on configuring the device to operate in this mode.

The Switch Configuration screen, [Figure 5-15](#), provides the basic setup options to make a switch operational in your network.

To access the Switch Configuration screen from the Device Configuration Menu screen, use the arrow keys to highlight the **SWITCH CONFIGURATION** menu item and press ENTER. The Switch Configuration screen displays.



Ports 1 and 2 of the Switch Configuration screen correspond to the Fast Ethernet slots and ports 3 and 4 correspond to the HSIM slots.

Event Message Line

2M46-04R LOCAL MANAGEMENT

Switch Configuration

Device Type: 2M46-04R

Firmware Revision: XX.XX.XX

BOOTPROM Revision: XX.XX.XX

Switch Address: 00-00-1D-00-00-00

Type of STA: [IEEE]

Number of Ports: 4

Age Time (sec): 300

Port #	MAC Address	State	Status
1	00-00-1D-00-00-00	learning	[ENABLED]
2	00-00-1D-00-00-01	listening	[ENABLED]
3	00-00-1D-00-00-02	blocking	[ENABLED]
4		disabled	[DISABLED]

SAVE

EXIT

RETURN

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Figure 5-15 Switch Configuration Screen

The following describes each field of the Switch Configuration screen:

Switch Address (Read-Only)

Displays the base MAC address of the switch.

Number of Ports (Read-Only)

Displays the total number of switched ports on the 2M46-04R.

Type of STA (Modifiable)

Allows the user to set the method that switches use to decide which switch is the controlling (Root) switch when two or more switches exist in parallel (Spanning Tree Algorithm). Valid entries include IEEE, DEC, and NONE. To set the STA, refer to [Section 5.10.1](#).

Age Time (Modifiable)

Allows the user to set the amount of time (in seconds) that the 2M46-04R keeps an address in its switch table before discarding it. An address is automatically discarded when a valid packet is not received from that address within the time specified in the Age Time field. To change the Age Time field from the default value of 300 seconds, refer to [Section 5.10.2](#).

Port # (Read-Only)

Lists each switched port on the device.

MAC Address (Read-Only)

Displays the hardware address assigned to each listed port.

State (Read-Only)

Disabled: Management disabled this interface. No traffic is received or forwarded while the interface is disabled.

Learning: The switch is learning the addresses on this interface. The switch enters the learning state when the Transparent Database is created (during start-up or after being deleted), or when the Spanning Tree Algorithm detects a network topology change.

Listening: The switch is not adding information to the Transparent Database. The switch is monitoring BPDU traffic while preparing to move from the learning to the forwarding state.

Forwarding: The switch is operating and this interface is forwarding traffic.

Blocking: This interface will not forward any traffic through the switch because a loop condition has been detected by the STA.

Status (Toggle)

Allows the user to disable or enable a port by setting the status of the listed interface to either ENABLED or DISABLED. To set the port status, refer to [Section 5.10.3](#).

5.10.1 Setting the STA

The Spanning Tree Algorithm (STA) setting allows the user to set the method that the switches use to decide which is the controller (Root) switch when two or more switches are in parallel. The available selections are IEEE, DEC, and NONE.

To set the STA, proceed as follows:

1. Use the arrow keys to highlight the **Type of STA** field.
2. Use the SPACE bar to step to the appropriate setting (**IEEE**, **DEC**, or **NONE**).
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” is displayed.

5.10.2 Setting the Age Time Field

To set the Age Time, proceed as follows:

1. Use the arrow keys to highlight the **Age Time (sec)** field.
2. Type in the desired Age Time in increments of 10. The available Age Time range is 10 to 1,000,000 seconds with the default value being 300 seconds.
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” is displayed.

5.10.3 Setting (Enabling or Disabling) the Port Status

To set the status of an interface (port), proceed as follows:

1. Use the arrow keys to highlight the **Status** field of the port.
2. Use the SPACE bar to toggle to either **ENABLED** or **DISABLED**.
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” is displayed.

5.11 DEVICE SPECIFIC CONFIGURATION MENU SCREEN

The Device Specific Configuration menu screen, [Figure 5-16](#), allows the user to select one of several screens to configure ports or check system resources specific to the 2M46-04R.

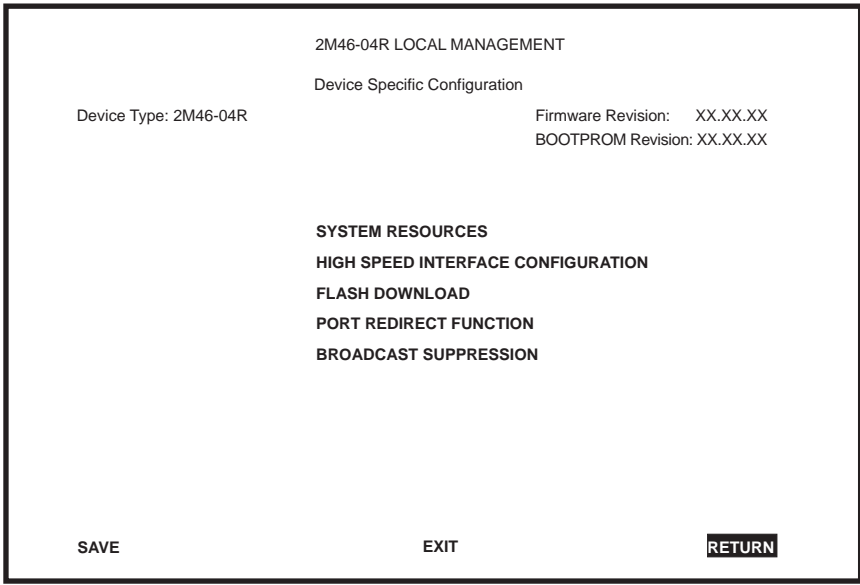


The PORT REDIRECT FUNCTION menu item on the Device Specific Configuration Menu screen does not display if the operational mode of the device is set to 802.1Q SWITCHING.

The PORT REDIRECT FUNCTION and BROADCAST SUPPRESSION menu items do not display if the operational mode is set to SECURE FAST VLAN.

[Section 5.7.9](#) provides instructions on setting the operational mode.

To access the Device Specific Configuration menu screen from the Device Configuration menu screen, use the arrow keys to highlight the **DEVICE SPECIFIC CONFIGURATION** menu item and press ENTER. The Device Specific Configuration menu screen displays.



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Figure 5-16 Device Specific Configuration Menu Screen

The following explains each selectable item in the Device Specific Configuration Menu screen:

SYSTEM RESOURCES

The System Resources screen displays the amount of FLASH memory, DRAM and NVRAM installed, indicates the amount of available memory and provides information on 2M46-04R operation. For details, refer to [Section 5.12](#).

HIGH SPEED INTERFACE CONFIGURATION

The High Speed Interface Configuration screen provides access to the Fast Ethernet Interfaces screen and the HSIM screens. For details, refer to [Section 5.13](#).

FLASH DOWNLOAD

The FLASH Download screen allows the user to download a new firmware image to FLASH memory on the 2M46-04R. For details, refer to [Section 5.15](#).

PORT REDIRECT FUNCTION

The Port Redirect Function screen allows the user to redirect traffic from one or multiple ports to a specific destination port. For details, refer to [Section 5.16](#).

BROADCAST SUPPRESSION

The Broadcast Suppression screen allows the user to set a desired limit of received broadcast frames that will be forwarded per port per second. For details, refer to [Section 5.17](#).

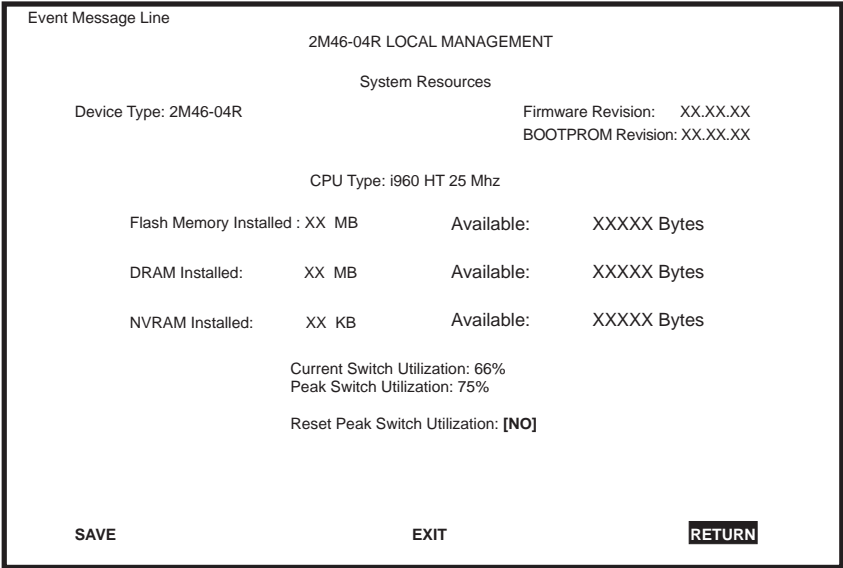
802.1Q VLAN CONFIGURATION

This menu item will only display if the 2M46-04R has been configured to operate as an IEEE 802.1Q switch ([Section 5.7.9](#), describes how to configure the 2M46-04R to function as an 802.1Q switch). When selected, this menu item opens the VLAN Main Menu screen. For details on the VLAN Main Menu screen, refer to the Cabletron Systems *Port Based VLAN User's Guide*.

5.12 SYSTEM RESOURCES SCREEN

The System Resources screen, [Figure 5-17](#), provides information concerning the processor used in the 2M46-04R and the amount of FLASH memory, DRAM, and NVRAM that is installed and how much of that memory is available. This screen also allows the user to monitor the current processor (switch) utilization and the peak switch utilization.

To access the System Resources screen from the Device Specific Configuration Menu screen, use the arrow keys to highlight the **SYSTEM RESOURCES** menu item and press ENTER. The System Resources screen displays.



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Figure 5-17 System Resources Screen

The following briefly explains each field of the System Resources screen:

CPU Type (Read-only)

Indicates the microprocessor used in the 2M46-04R.

Flash Memory Installed (Read-only)

Indicates the amount of FLASH memory installed in the 2M46-04R and how much is currently available.

DRAM Installed (Read-only)

Indicates the amount of DRAM installed in the 2M46-04R and how much of it is currently available.

NVRAM Installed (Read-only)

Indicates the amount of NVRAM installed in the 2M46-04R and how much of it is currently available.

Current Switch Utilization (Read-only)

Shows how much (percentage of switch capacity) of the 2M46-04R is currently being used.

Peak Switch Utilization (Read-only)

Shows the peak percentage of maximum switching capacity, since last reset.

Reset Peak Switch Utilization (Toggle)

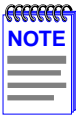
Allows the user to reset the Peak Switch Utilization field. The switch may be set to either YES or NO. YES resets the Peak Switch Utilization field to zero.

5.12.1 Setting the Reset Peak Switch Utilization

To reset the Peak Switch Utilization field to zero, proceed as follows:

1. Use the arrow keys to highlight the **Reset Peak Switch Utilization** field.
2. Press the SPACE bar to select **YES**.
3. Use the arrows keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” displays.

5.13 HIGH SPEED INTERFACE CONFIGURATION MENU SCREEN

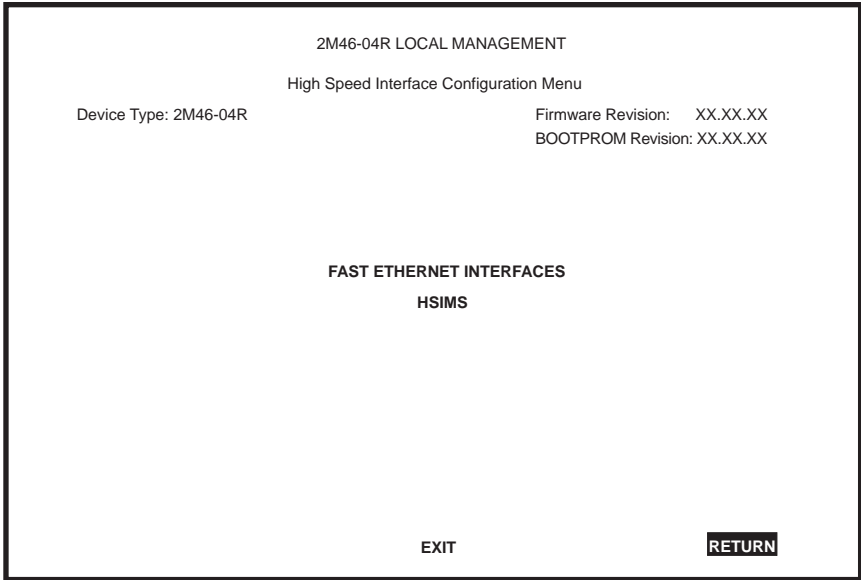


This screen does not display unless one, or both, Fast Ethernet Interface Modules AND an HSIM are installed.

This screen will also not display if the HSIM that is installed is an HSIM-W6 or an HSIM-W84. Access to their Local Management screens is via their respective ASYNC ports. Refer to the associated HSIM user’s guides for more details.

If only Fast Ethernet Interface Modules or an HSIM is installed, then the respective Fast Ethernet Interfaces screen or the HSIM Setup screen displays instead of the High Speed Interface Configuration Menu screen.

To access the High Speed Interface Configuration Menu screen, **Figure 5-18**, from the Device Specific Configuration Menu screen, use the arrow keys to highlight the **HIGH SPEED INTERFACE CONFIGURATION** menu item and press ENTER. The High Speed Interface Configuration Menu screen displays.



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Figure 5-18 High Speed Interface Configuration Menu Screen

The following briefly explains each screen accessible from the High Speed Interface Configuration Menu screen:

FAST ETHERNET INTERFACES

Displays a screen named High Speed Interface Configuration which shows the types of Fast Ethernet Interface Modules installed in ports 1 and 2, their current operating mode, and indicates if the ports are linked. This screen also allows the user to enable or disable Auto-Negotiation and set the Advertised Ability. For details, refer to [Section 5.14](#).

HSIMS

Displays the types of interfaces installed in the High Speed Interface Module (HSIM) slots. The HSIM screens are depicted in their respective user's guides.

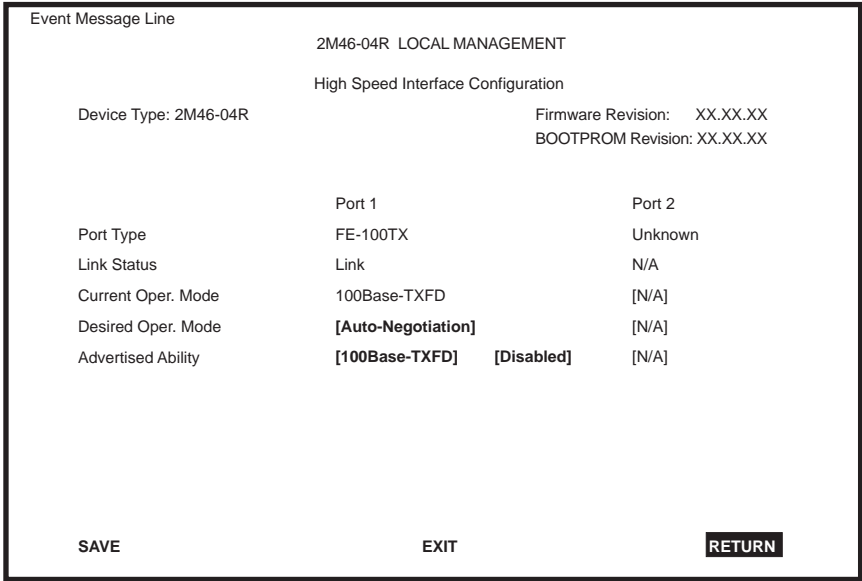
5.14 HIGH SPEED INTERFACE CONFIGURATION SCREEN

The High Speed Interface Configuration screen, [Figure 5-19](#), applies only to Fast Ethernet Interface Module ports 1 and 2. This screen supports the FE-100TX, FE-100FX, and FE-100F3 Fast Ethernet Interface Modules that operate at 10 or 100 Mbps.

If you are configuring an HSIM which is installed in the 2M46-04R, use the arrow keys to highlight the **HSIMS** menu item and press ENTER. Then refer to the applicable HSIM User’s Guide for further information.

The High Speed Interface Configuration screen displays the types of interfaces installed in ports 1 and 2, their current operating mode, and indicates if the ports are linked. This screen also allows the user to enable or disable Auto-Negotiation and set the Advertised Ability.

To access the High Speed Interface Configuration screen from the High Speed Interface Configuration Menu screen, use the arrow keys to highlight the **FAST ETHERNET INTERFACES** menu item and press ENTER. The High Speed Interface Configuration screen displays.



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Figure 5-19 High Speed Interface Configuration Screen

The following briefly explains each field of the High Speed Interface Configuration screen:

Port Type (Read-only)

Displays the type of interface (FE-100FX, FE-100TX, FE-100F3, or Unknown) installed in ports 1 and 2. [Figure 5-19](#) shows that there is an FE-100TX interface installed in port 1 and no interface, indicated by Unknown, in port 2.

Link Status (Read-only)

Indicates whether or not there is a physical connection from this port to another 10BASE-T or 100BASE-TX/FX device. One of the following values displays:

- Link – There is a link signal present and a valid physical connection to another device.
- No Link – There is no link signal present and no valid physical connection to another device.

Current Oper. Mode (Read-only)

This field displays the current operating mode of ports 1 and 2. Depending on whether a 100BASE-FX, or 100BASE-TX is installed, this field displays the following:

- With a 100BASE-FX interface: 100Base-FX, 100Base-FXFD (full duplex), or N/A when port is empty.
- With a 100BASE-TX interface: Unknown, 10Base-T, 10Base-TFD (full duplex), 100Base-TX, 100Base-TXFD (full duplex) or N/A when port is empty.

Desired Oper. Mode (Selectable)

This field allows the user to select the desired operational mode for an interface in port 1 or 2. The field toggles between 100Base-FX and 100Base-FXFD (full duplex) when an FE-100FX or FE-100F3 is installed. [Section 5.14.1](#) describes how to configure a port with an FE-100FX or FE-100F3.



In normal operation, the port with an FE-100TX installed automatically establishes a link with the device at the other end of the segment without requiring user setup. However, Local Management provides the user with the option of manually configuring that port.

If an FE-100TX is installed, the field steps to Auto-Negotiation, 10Base-T, 10Base-TFD (full duplex), 100Base-TX, and 100Base-TXFD (full duplex). In normal operation, the port with an FE-100TX installed is capable of auto-negotiating the operational mode and no further user setup is required. [Section 5.14.3](#) describes how to manually configure an FE-100TX.

In Auto-Negotiation, the FE-100TX negotiates to the highest common denominator of the two interfaces. The order of priority of negotiation is 100BASE-TXFD, 100BASE-TX, 10BASE-TFD, and 10BASE-T.

Advertised Ability (Selectable)

During auto-negotiation, the FE-100TX “tells” the device at the other end of the segment about its capabilities. The capabilities of a port (1 or 2) with an FE-100TX installed are 10BASE-T, 10BASE-TFD (full duplex mode), 100BASE-TX and 100BASE-TXFD (full duplex mode). In normal operation, with all capabilities enabled, the FE-100TX “advertises” that it has the ability to operate in any mode. The Network Manager may choose to set up the port so that only a portion of the available capabilities are advertised and the others are disabled. For example, only 100BASE-TX and 100BASE-TXFD might be enabled so that only devices that operate at 100 Mbps can communicate with that port. [Section 5.14.5](#) describes how to enable or disable advertised modes.

5.14.1 Configuring an FE-100FX or FE-100F3 in Port 1 or 2

When an FE-100FX or FE-100F3 is installed in port 1 or 2, it must be manually set to operate in the same technology as the device at the other end of the connected segment. [Section 5.14.2](#) provides instructions for manually configuring the port with an FE-100FX or FE-100F3 interface.

5.14.2 Setting the FE-100FX or FE-100F3 Desired Operational Mode

Use this field to set the active technology. This field toggles between 100Base-FX and 100Base-FXFD (full duplex). To set the active technology through Local Management, proceed as follows:

1. Use the arrow keys to highlight the **Desired Oper. Mode** field.
2. Use the SPACE bar to select **100Base-FX** or **100Base-FXFD** (full duplex).
3. Press ENTER. The port now operates in the chosen mode.
4. Use the arrow keys to highlight the **SAVE** command. Press ENTER. The message “SAVED OK” displays and Local Management saves the changes to memory.

5.14.3 Configuring an FE-100TX in Port 1 or 2

In normal operation, a port (1 or 2) with an FE-100TX interface automatically establishes a link with the device at the other end of the segment and no user setup is required. [Section 5.14.4](#) and [Section 5.14.5](#) provide instructions for manually configuring the port with an FE-100TX installed.

5.14.4 Setting the FE-100TX Desired Operational Mode

Use this field to set the active technology. This field steps between Auto-Negotiation, 10Base-T, 10Base-TFD (full duplex), 100Base-TX, and 100Base-TXFD (full duplex). If Auto-Negotiation is selected, the FE-100TX automatically sets the active technology. To manually set the active technology through Local Management, proceed as follows:

1. Use the arrow keys to highlight the **Desired Oper. Mode** field.
2. Use the SPACE bar to select the desired mode. Press ENTER. If any mode other than Auto-Negotiation is selected, the port only operates in the chosen mode and Auto-Negotiation is disabled.
3. Use the arrow keys to highlight the **SAVE** command. Press ENTER. The message “SAVED OK” displays and Local Management saves the changes to memory. The selected mode is displayed in both the Desired Operational Mode field and the Current Operational Mode field.

5.14.5 Setting the FE-100TX Advertised Ability

In normal operation, a port (1 or 2) with an FE-100TX auto-negotiates to the highest speed possible. Under some circumstances, the Network Administrator may want the port to advertise only some of the available modes and not advertise in other modes. This field steps to 10Base-T, 10Base-TFD (full duplex), 100Base-TX, and 100Base-TXFD (full duplex). To set the advertised ability, proceed as follows:

1. Use the arrow keys to highlight the **Advertised Ability** field.
2. Use the SPACE bar to select the desired mode.
3. Use the arrow keys to move to the **Enabled/Disabled** field to the right of the desired mode and use the SPACE bar to select **Enabled** or **Disabled**. Press ENTER.
4. Repeat steps 1 to 3 until you have completed enabling or disabling the desired advertised modes.
5. Use the arrow keys to highlight the **SAVE** command. Press ENTER. The message “SAVED OK” displays and Local Management saves the changes to memory.

5.15 FLASH DOWNLOAD SCREEN

The Flash Download screen, shown in [Figure 5-20](#), allows the user to clear the information stored in the 2M46-04R FLASH memory and download a new image file from a TFTP server. Before downloading an image to the device, load the image onto the network TFTP server.



The user may also force the download of an image by changing the position of Switch 6 located inside the device. Refer to [Section C.2.1, Setting the Mode Switch](#), for details. If Switch 6 is toggled, the TFTP server must be located on a Fast Ethernet port.

For information on how to set up a workstation as a TFTP server, refer to the specific workstation documentation.

Boot PROM downloads (.hex) cannot be done through HSIM ports. If downloading through an HSIM, runtime download **MUST** be used. Firmware based downloads (.fls) can be done through any port.

To access the Flash Download screen from the Device Specific Configuration Menu screen, use the arrow keys to highlight the **FLASH DOWNLOAD** menu item and press ENTER. The Flash Download screen displays.

TFTP DOWNLOAD. WILL COMMIT TO FLASH. REBOOT IN PROGRESS...

2M46-04R LOCAL MANAGEMENT

Flash Download

Device Type: 2M46-04R

Firmware Revision: XX.XX.XX
BOOTPROM Revision: XX.XX.XX

Download Method: **[TFTP]**

Reboot After Download: **[YES]**

TFTP Gateway IP Addr: **134.141.79.123**

Last Image Server IP: 134.141.79.121

Last Image File Name: /tftpboot/2M46.hex

Download Server IP: **134.141.79.121**

Download File Name: **/tftpboot/2M46.hex**

EXECUTE
EXIT
RETURN

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Figure 5-20 Flash Download Screen



Download Server IP and Download File Name are displayed only when TFTP or RUNTIME is selected in Download Method.

The following briefly explains each field of the Flash Download screen:

Download Method (Selectable)

This field toggles between BOOTP, TFTP, and RUNTIME. If set for BootP, the device sends out a BootP request to determine the IP address of the TFTP server and the file name of the image to be downloaded. If set for TFTP or RUNTIME, the 2M46-04R attempts a TFTP download based on the IP address and file name entered in the fields at the bottom of the Flash Download screen. [Section 5.15.1](#) describes how to download using BootP. [Section 5.15.2](#) describes how to download using TFTP. [Section 5.15.3](#) describes how to download using Runtime.

Reboot After Download (Modifiable when **RUNTIME** is chosen only)

This field notifies the user that the 2M46-04R will reboot after the download is complete. If a Runtime Download is performed, this field toggles between YES and NO. If YES is selected, the device reboots after the download is completed. If NO is selected, the device continues using the existing firmware image and stores the new firmware image in FLASH memory. When the device is reset or during the next power-up, the device will boot from FLASH memory using the new image.

TFTP Gateway IP Addr (Selectable)

This field shows the IP address of the TFTP gateway defined in the General Configuration screen in [Section 5.7.4](#).

Last Image Server IP (Read-only)

This field shows the IP address of the server used for the previous FLASH Download.

Last Image File Name (Read-only)

This field shows the complete path and file name of the last image downloaded to FLASH.

If TFTP or RUNTIME is selected as the download method ([Figure 5-20](#)), the following two additional fields appear:

Download Server IP (Modifiable)

The IP address of the TFTP server to be used for the FLASH download is entered in this field.

Download File Name (Modifiable)

The complete TFTP Server path and file name of the new image is entered in this field.

5.15.1 Image File Download Using BootP

To download a firmware image into FLASH using BootP, proceed as follows:

1. Use the arrow keys to highlight the **Download Method** field.
2. Use the SPACE bar to select **BOOTP**.
3. Use the arrow keys to highlight the **TFTP Gateway IP Addr** field.

4. Set the IP address of the TFTP gateway server (this defaults to the same IP address set in the TFTP Gateway IP Addr field in the General Configuration screen).
5. Use the arrow keys to highlight **EXECUTE** at the bottom of the screen and press ENTER. The message “BOOTP DOWNLOAD. WILL COMMIT TO FLASH. REBOOT IN PROGRESS...” displays in the event message line at the top of the screen and the new image is downloaded into FLASH memory.

5.15.2 Image File Download Using TFTP

To download a firmware image into FLASH using TFTP, proceed as follows:

1. Use the arrow keys to highlight the **Download Method** field.
2. Use the SPACE bar to select **TFTP**.
3. Use the arrow keys to highlight the **TFTP Gateway IP Addr** field.
4. Set the IP address of the TFTP gateway server (this defaults to the same IP address as that set in the TFTP Gateway IP Addr field on the General Configuration screen).
5. Use the arrow keys to highlight the **Download Server IP** field.
6. Enter the IP address of the TFTP server using the DDN format.
For example: 134.141.79.121
7. Use the arrow keys to highlight the **Download File Name** field.
8. Enter the complete path and file name of the image stored on the download server.
For example: /tftpboot/2M46.hex
9. Use the arrow keys to highlight **EXECUTE** at the bottom of the screen and press ENTER. The message “TFTP DOWNLOAD. WILL COMMIT TO FLASH. REBOOT IN PROGRESS...” displays in the event message line at the top of the screen and the new image is downloaded into FLASH memory.

5.15.3 Image File Download Using Runtime

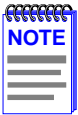
To download a new firmware image into FLASH using Runtime, proceed as follows:

- 1.** Use the arrow keys to highlight the **Download Method** field.
- 2.** Use the SPACE bar to select **RUNTIME**.
- 3.** Use the arrow keys to highlight the **Reboot After Download** field.
- 4.** Use the SPACE bar to select either **YES** or **NO**. Select **YES** if you want the device to reboot after the download is completed. Select **NO** if you want the device to store the new image in FLASH memory until the device is reset or during the next power-up.
- 5.** Use the arrow keys to highlight the **TFTP Gateway IP Addr** field.
- 6.** Set the IP address of the TFTP gateway server (this defaults to the same IP address as that set in the TFTP Gateway IP Addr field on the General Configuration screen).
- 7.** Use the arrow keys to highlight the **Download Server IP** field.
- 8.** Enter the IP address of the TFTP server using the DDN format.
For example: 134.141.79.121
- 9.** Use the arrow keys to highlight the **Download File Name** field.
- 10.** Enter the complete path and file name of the image stored on the download server.
For example: /tftpboot/2M46.fl5
- 11.** Use the arrow keys to highlight **EXECUTE** at the bottom of the screen and press ENTER. The message “RUNTIME DOWNLOAD. WILL COMMIT TO FLASH. REBOOT IN PROGRESS...” displays in the event message line at the top of the screen and the new image is downloaded into FLASH memory.

5.16 PORT REDIRECT FUNCTION SCREEN

The Port Redirect Function screen, [Figure 5-21](#), allows the user to set each one of the ports as a source or destination port. A port can be set to have one or more destination ports. For example, port 1 can be set as a source port with three destinations, ports 2, 3, and 4. Traffic from port 1 is then automatically redirected to ports 2, 3, and 4. Port 1 can also serve as a destination port for other ports.

The port redirect function is extremely useful for troubleshooting purposes, as it allows traffic to be sent to a particular port(s) where, with the use of an analyzer or RMON probe, all current traffic from the source port(s) can be examined.



Although all traffic from the source port (including, if desired, errored frames) is sent to the destination port, normal switching is still performed for all frames on the source port.

Port Redirect function is not supported in 802.1Q mode.

To access the Port Redirect Function screen from the Device Specific Configuration Menu screen, use the arrow keys to highlight the **PORT REDIRECT FUNCTION** menu item and press ENTER. The Port Redirect Function screen displays.

Event Message Line

2M46-04R LOCAL MANAGEMENT

Port Redirect Function

Device Type: 2M46-04R

Firmware Revision: XX.XX.XX

BOOTPROM Revision: XX.XX.XX

Source Port	Destination Port	Remap Errors
1	2	ON
1	3	ON
1	4	ON
2	1	OFF
2	3	ON
--	--	--
--	--	--
--	--	--

Source Port [1]

Destination Port [1]

Errors [ON]

Status [ADD]

SAVE

EXIT

RETURN

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Figure 5-21 Port Redirect Function Screen

The following definitions briefly explain each field of the Port Redirect Function screen:

Source Port (Read-only)

Shows which ports are currently set as source ports.

Destination Port (Read-only)

Shows which ports are currently set as destination ports.

Remap Errors (Read-only)

Shows whether destination ports are receiving errored frames and valid traffic (ON) or just valid traffic (OFF).

Source Port [n] (Selectable)

Allows a selected port [n] to be changed to a source port.

Destination Port [n] (Selectable)

Allows a selected port [n] to be changed to a destination port.

Errors (Toggle)

Allows the user to configure the source ports to send errored frames and valid traffic to selected destination ports (ON), or to drop errored frames, and send only valid traffic to the destination ports (OFF). The default setting of this field is ON.

Status (Selectable)

Allows the addition or deletion of source and destination ports selected in the Source Port [n] and Destination Port [n] fields.

5.16.1 Displaying the Source and Destination Entries

There can be more than one Port Redirect Function screen depending on the number of port redirect entries. Each screen displays up to 10 port redirect entries. If there is more than one screen of redirect entries, the **NEXT** and/or **PREVIOUS** command is displayed at the bottom of the screen, allowing the user to navigate to either the next or previous screen.

5.16.2 Changing Source and Destination Ports

Add or delete source port and destination port entries as follows:

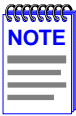
1. Use the arrow keys to highlight the **Source Port** field.
2. Press the SPACE bar or BACKSPACE one or more times to increment or decrement the port number displayed in the brackets [*n*] until the appropriate port number is displayed.
3. Use the arrow keys to highlight the **Destination Port** field.
4. Use the SPACE bar or BACKSPACE to step to the appropriate port number for the destination port.
5. Use the arrow keys to highlight the **Errors** field.
6. Use the SPACE bar to select either the **ON** or **OFF** setting and press ENTER. **ON** forces the source port to forward errored frames and valid traffic to the destination port(s). **OFF** forces errored frames to be dropped before forwarding traffic.
7. Use the arrow keys to highlight the **Status** field.
8. Use the SPACE bar to select either the **ADD** or **DEL** (delete) option. Press ENTER. This adds or deletes the port selections made in steps 2 and 4 and also updates the screen Source Port and Destination Port list.



To redirect more than one port, repeat steps 1 through 8 for each additional setting, then go to step 9 to save all the new settings at once.

9. Use the arrow keys to highlight **SAVE** at the bottom of the screen. Press ENTER. The message “SAVED OK” is displayed. This saves the new settings and updates the Source Port and Destination Port read-only fields.

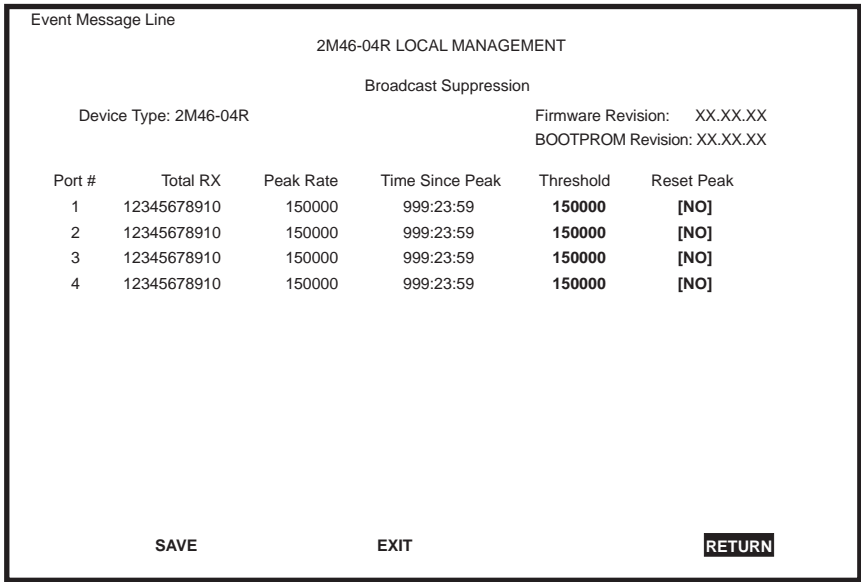
5.17 BROADCAST SUPPRESSION SCREEN



The Broadcast Suppression screen will display only if the operational mode of the device has been set to 802.1D SWITCHING or 802.1Q SWITCHING. Refer to [Section 5.7.9, Setting the Operational Mode](#) for instructions on configuring the device to operate in this mode.

The Broadcast Suppression screen, [Figure 5-22](#), allows the user to set a desired limit of receive broadcast frames that are switched out to the other interfaces. This feature limits the amount of broadcast packets to the threshold setting (1 second) and drops all other broadcast packets until the 1 second threshold elapses. This screen also provides statistics about the broadcast activity on ports 1 through 4.

To access the Broadcast Suppression screen from the Device Specific Configuration Menu screen, use the arrow keys to highlight the **BROADCAST SUPPRESSION** menu item and press ENTER. The Broadcast Suppression screen displays.



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Figure 5-22 Broadcast Suppression Screen

The following explains each field of the Broadcast Suppression screen:

Port # (Read-only)

Identifies the number of the port.

Total RX (Read-Only)

Displays the total number of broadcast frames received.

Peak Rate (Read-Only)

Displays the highest number of broadcast frames received in a one second interval.

Time Since Peak (Read-Only)

Displays the time since peak rate was achieved.

Threshold (Modifiable)

Allows the user to set the desired limit of receive broadcast frames that will be forwarded per port per second.

Reset Peak (Toggle)

Allows the user to reset the Peak Rate field. Resetting the peak rate also resets the Time Since Peak field. The Reset Peak field toggles between YES and NO.

5.17.1 Setting the Threshold

To set the Threshold, proceed as follows:

1. Use the arrow keys to highlight the **Threshold** field for the selected port.
2. Type in the numbers for the desired limit. Only enter value in increments of ten (for example; 10, 20, 30, etc.). Press ENTER.
3. Use the arrow keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message "SAVED OK" displays.

5.17.2 Setting the Reset Peak Rate

To reset the Peak Rate field to zero, proceed as follows:

1. Use the arrow keys to highlight the **Reset Peak** field for the selected port.
2. Press the SPACE bar to select **YES**.
3. Use the arrows keys to highlight the **SAVE** command at the bottom of the screen.
4. Press ENTER. The message “SAVED OK” displays and the Time Since Peak field is also reset.

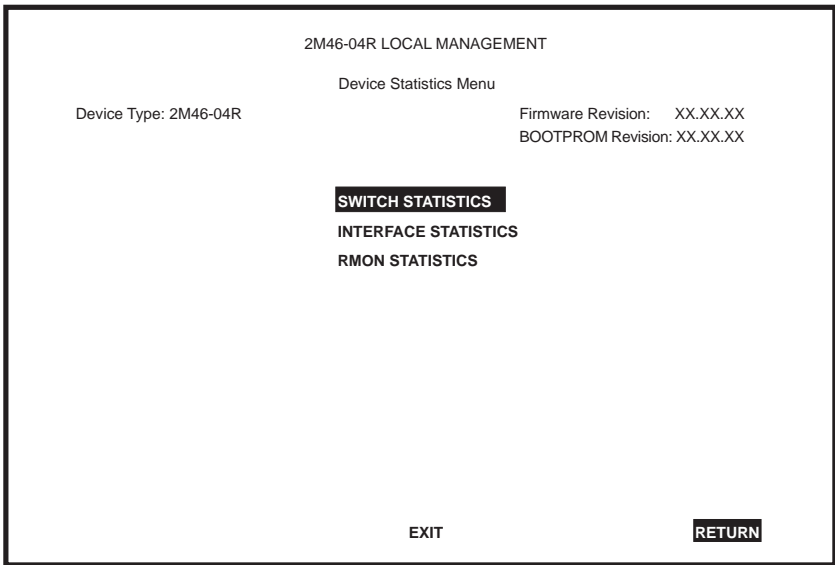
5.18 DEVICE STATISTICS MENU SCREEN

The Device Statistics Menu screen, [Figure 5-23](#), provides access to screens that allow the user to obtain switch statistics about frame traffic through each interface and view operating statistics about each interface.

To access the Device Statistics Menu from the Device Menu screen, use the arrow keys to highlight the **DEVICE STATISTICS** menu item and press ENTER. The Device Statistics Menu screen displays.



The Switch Statistics menu item will only display if the operational mode of the device has been set to 802.1D SWITCHING or 802.1Q SWITCHING. Refer to [Section 5.7.9](#) for instructions on configuring the device to operate in this mode.



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Figure 5-23 Device Statistics Menu Screen

The Device Statistics Menu screen displays the following items:

SWITCH STATISTICS

The Switch Statistics screen lists the number of frames received, transmitted, filtered, and forwarded by each interface. For details, refer to [Section 5.19](#).

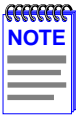
INTERFACE STATISTICS

The Interface Statistics screen provides the MIB-II statistics for each switched interface, on a interface-by-interface basis. For details, refer to [Section 5.20](#).

RMON STATISTICS

The RMON Statistics screen displays all the statistics gathered by the embedded RMON agent of the 2M46-04R. For details, refer to [Section 5.21](#).

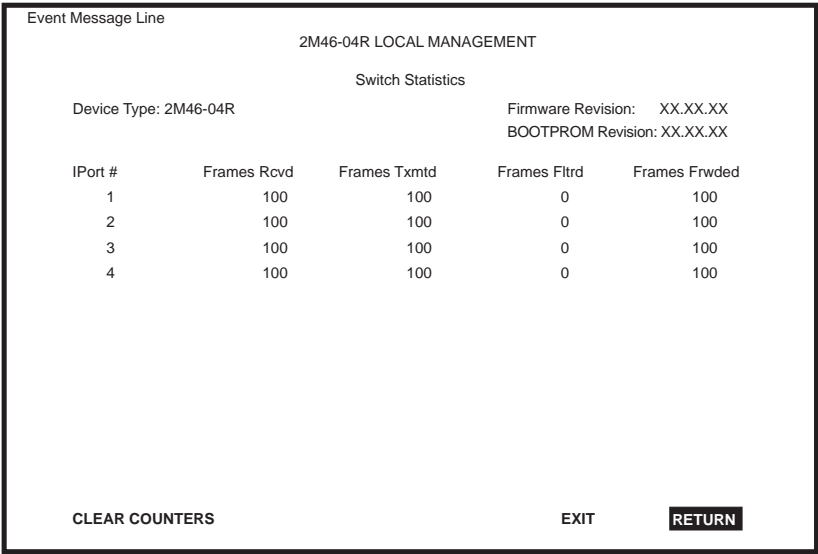
5.19 SWITCH STATISTICS SCREEN



The Switch Statistics screen will displays only if the operational mode of the device has been set to 802.1D SWITCHING or 802.1Q SWITCHING. Refer to [Section 5.7.9](#) for instructions on configuring the device to operate in this mode.

The Switch Statistics screen, [Figure 5-24](#), lists the number of frames received, transmitted, filtered, and forwarded by each interface.

To access the Switch Statistics screen from the Device Statistics Menu screen, use the arrow keys to highlight the **SWITCH STATISTICS** menu item and press ENTER. The Switch Statistics screen displays.



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Figure 5-24 Switch Statistics Screen

The Switch Statistics screen displays the following fields:

Port # (Read-Only)

Identifies the interface or port number.

Frames Rcvd (Read-Only)

Displays the number of frames received by the interface since last power-up or reset.

Frames Txmtd (Read-Only)

Displays the number of frames transmitted by the interface since last power-up or reset.

Frames Fltrd (Read-Only)

Displays the number of frames filtered by the interface since last power-up or reset.

Frames Frwded (Read-Only)

Displays the number of frames forwarded by the interface.

CLEAR COUNTERS (Command)

This command clears all the counters of the interfaces displayed to zero. For details on how to use this field, refer to [Section 5.19.1](#).

5.19.1 Using the Clear Counters Command

To reset all the statistic counters to zero, perform the following steps:

1. Use the arrow keys to highlight the **CLEAR COUNTERS** field at the bottom of the screen.
2. Press ENTER, and the counters for the selected interface are reset to zero.

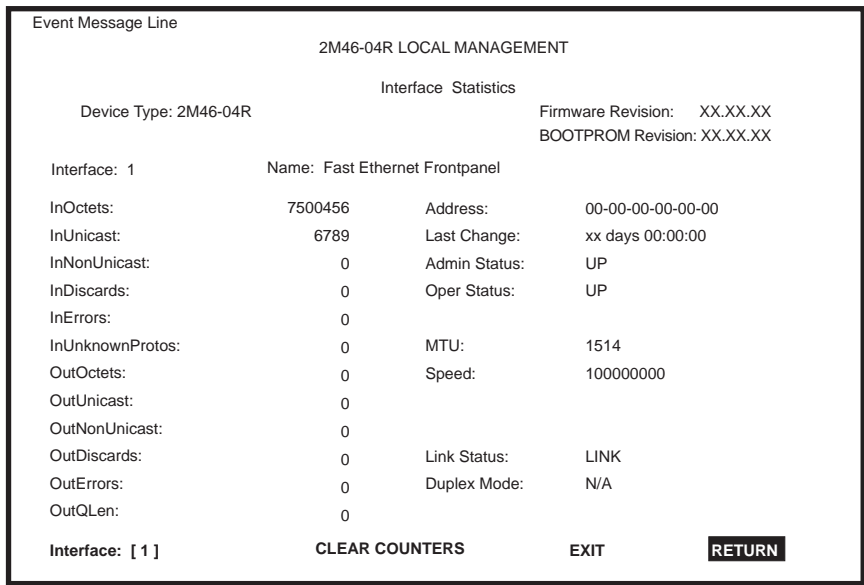
5.20 INTERFACE STATISTICS SCREEN

The Interface Statistics screen, [Figure 5-25](#), is used to gather MIB-II statistics for the 2M46-04R Fast Ethernet Interface Modules.



Cabletron Systems HSIMs gather their own statistics, and may be viewed via the Local Management screens of the applicable HSIM. Refer to your HSIM documentation for information on how to access these screens.

To access the Interface Statistics screen, use the arrow keys to highlight the **INTERFACE STATISTICS** menu item on the Device Statistics Menu screen and press ENTER. The Interface Statistics screen displays.



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Figure 5-25 Interface Statistics Screen

The following definitions explain each field of the Interface Statistics screen:

Interface (Read-only)

This field displays the Interface number for which statistics are currently being displayed. [Figure 5-25](#) shows the Interface field displaying 1. This represents the port number of the module chosen by the user in the selectable field at the bottom of the screen. To view other interface statistics, refer to [Section 5.20.1](#).

Name (Read-only)

The Name field displays the type of interface for which statistics are being displayed.

InOctets (Read-only)

This field displays the total number of octets (bytes) that have been received on the interface. This includes all octets from bad frames.

InUnicast (Read-only)

The InUnicast field displays the total number of frames received that had a unicast destination address.

InNonUnicast (Read-only)

This field displays the total number of frames received that had a broadcast or multicast destination address.

InDiscards (Read-only)

The InDiscards field displays the total number of inbound frames that were discarded, even though the frames contained no errors. This field may increment because the switch needed to free up buffer space, or the switch was being overutilized.

InErrors (Read-only)

This field displays the total number of inbound frames that have been discarded because they contained errors. This field represents the total number of errored frames, regardless of the cause of the error.

InUnknownProtos (Read-only)

The InUnknownProtos field displays the total number of frames that were discarded because the frames were in an unknown, or unsupported, format.

OutOctets (Read-only)

This field displays the total number of octets (bytes) that have been transmitted from the Interface. This includes all Frame Check Sequence (FCS) octets.

OutUnicast (Read-only)

The OutUnicast field displays the total number of frames transmitted that were sent to a single address.

OutNonUnicast (Read-only)

This field displays the total number of frames transmitted to a broadcast or multicast address.

OutDiscards (Read-only)

The OutDiscards field displays the total number of outbound frames that were discarded, even though the frames contained no errors. This field may increment, because the switch needed to free up buffer space, or the switch was being overutilized.

OutErrors (Read-only)

This field displays the total number of outbound frames discarded because they contained errors. This field represents the total number of errored frames, regardless of the cause of the error.

OutQLen (Read-only)

The OutQLen field displays the length of the packet queue. The field represents the capacity of the queue.

Address (Read-only)

This field displays the MAC address of the interface that is currently being displayed.

Last Change (Read-only)

This field displays the last time that the interface was reset.

Admin Status (Read-only)

This field displays the current status of the interface. If this field displays **Testing**, no traffic may be passed on this interface.

Oper Status (Read-only)

This field displays the current status of the interface. If this field displays **Testing**, no traffic may be passed on this interface.

MTU (Read-only)

The maximum transmission unit (MTU) field displays the maximum data field size (in octets) that a frame may contain to be received or transmitted from this interface.

Speed (Read-only)

The Speed field displays the interface's theoretical maximum bandwidth in bits per second.

Link Status (Read-only)

This field displays the current link status of the interface. This field displays either Link or No Link.

Duplex Mode (Read-only)

This field indicates whether the interface is operating in normal (standard) or full duplex mode. This field displays either Standard or Full Duplex.

Interface [*n*] (Selectable)

This command is used to enter an interface number for viewing statistics. For instructions on how to use this command refer to [Section 5.20.1](#).

CLEAR COUNTERS (Command)

This command is used to reset all statistic counters to zero. For details on how to use this field, refer to [Section 5.20.2](#).

5.20.1 Displaying Interface Statistics

To display the statistics for any interface, proceed as follows:

1. Use the arrow keys to highlight the **Interface [*n*]** field at the bottom of the screen.
2. Press the SPACE bar to increment (or press the DEL [delete] key to decrement) the interface number.

Press ENTER (neither the **Interface #** fields nor the statistics will change until ENTER is pressed).

5.20.2 Using the Clear Counters Command

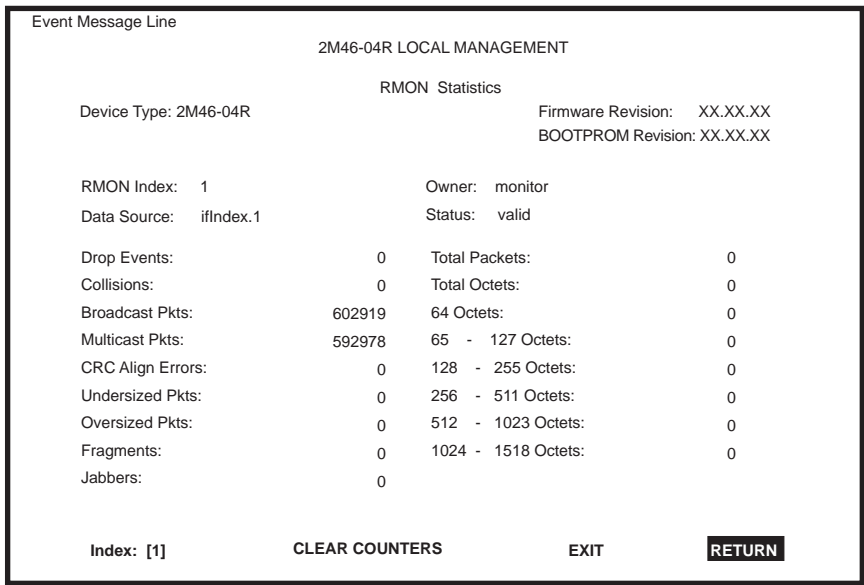
To reset all the statistics counters of the selected interface to zero, perform the following steps:

- 1. Use the arrow keys to highlight the **CLEAR COUNTERS** field.
- 2. Press ENTER, the counters for the selected interface are reset to zero.

5.21 RMON STATISTICS SCREEN

RMON statistics for every interface, on a interface-by-interface basis, are viewed through the RMON Statistics screen shown in Figure 5-26.

To access the RMON Statistics screen, use the arrow keys to highlight the **RMON STATISTICS** menu item on the Device Statistics Menu screen and press ENTER. The RMON Statistics screen displays.



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Figure 5-26 RMON Statistics Screen

The following definitions explain each field of the RMON Statistics screen:

RMON Index (Read-only)

This field displays the current interface for which statistics are being shown. The 2M46-04R has an embedded RMON agent that gathers statistics for each interface on the module.

Data Source (Read-only)

This field displays the source of the statistics data that is currently being displayed on the screen. [Figure 5-26](#) shows that the data source for this RMON index is Interface 1 by displaying the name ifIndex.1, chosen by the user in the selectable field at the bottom of the screen. If the screen was displaying RMON statistics for Interface 2, the name displayed would be ifIndex.2.

Owner (Read-only)

This field displays the name of the entity that last configured the device.

Status (Read-only)

The Status field displays the current operating status of the displayed interface. This field will display “valid” or “invalid”.

Drop Events (Read-only)

This field displays the total number of times that the RMON agent was forced to discard frames due to the lack of available switch resources.



The Drop Events field does not display the number of frames dropped, it only displays the number of times that the RMON agent was forced to discard frames.

Collisions (Read-only)

This field displays the total number of collisions that have occurred on this interface.

Broadcast Pkts (Read-only)

The Broadcast Pkts field displays the total number of good frames that were directed to the broadcast address. The value of this field does not include multicast frames.

Multicast Pkts (Read-only)

The Multicast Pkts field displays the total number of good frames received that were directed to a multicast address. The value of this field does not include frames directed to the broadcast address.

CRC Align Errors (Read-only)

This field displays the number of frames with bad Cyclic Redundancy Checks (CRC) received from the network. The CRC is a 4-byte field in the data frame that ensures that the data received is the same as the data that was originally sent.

Undersized Pkts (Read-only)

This field displays the number of frames received whose size was less than the minimum Ethernet frame size of 64 bytes, not including preamble, but have a valid CRC.

Oversized Pkts (Read-only)

This field displays the number of frames received whose size exceeded 1518 data bytes, not including preamble, but have a valid CRC.

Fragments (Read-only)

This field displays the number of received frames that are not the minimum number of bytes in length or received frames that had a bad CRC, and were less than 64 bytes in length (excluding framing bits, but including CRC bytes).



It is normal for the Fragments field to increment. This is because the RMON agent increments the field when runts (undersized frames) are detected (which are normal occurrences due to collisions) and when noise hits occur.

Jabbers (Read-only)

This field displays the total number of frames that were greater than 1518 bytes and had a bad CRC.

Total Packets (Read-only)

This field displays the total number of frames (including bad frames, broadcast frames, and multicast frames) received on this interface.

Total Octets (Read-only)

This field displays the total number of octets (bytes) of data, including those in bad frames, received on this interface.

64 Octets (Read-only)

Displays the total number of frames including bad frames, received that were 64 bytes in length (excluding framing bits, but including FCS bytes).

65 - 127 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 65 and 127 bytes in length (excluding framing bits, but including FCS bytes).

128 - 255 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 128 and 255 bytes in length (excluding framing bits, but including FCS bytes).

256 - 511 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 256 and 511 bytes in length (excluding framing bits, but including FCS bytes).

512 - 1023 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 512 and 1023 bytes in length (excluding framing bits, but including FCS bytes).

1024 - 1518 Octets (Read-only)

Displays the total number of frames, including bad frames, received that were between 1024 and 1518 bytes in length (excluding framing bits, but including FCS bytes).

Index [nn] (Selectable)

This field is used to enter an index number for viewing statistics. For instructions on how to use this command refer to [Section 5.21.1](#).

CLEAR COUNTERS

This command is used to reset all statistic counters to zero. For details on how to use this field, refer to [Section 5.21.2](#).

5.21.1 Displaying RMON Statistics

To display the statistics for any index, proceed as follows:

1. Use the arrow keys to highlight the **Index [nn]** field at the bottom of the screen.
2. Press the SPACE bar to increment or press the DEL (delete) key to decrement the index number.
3. Press ENTER (neither the RMON Index # field, the Date Source field, nor the statistics will change until ENTER is pressed).

5.21.2 Using the Clear Counters Command

To reset all the statistics counters of the selected interface to zero, perform the following steps:

1. Use the arrow keys to highlight the **CLEAR COUNTERS** field.
2. Press ENTER, the counters for the selected index are reset to zero.

5.22 NETWORK TOOLS

The Network Tools function resides on the 2M46-04R and allows the user to access and manage network devices.

To access the Network Tools screen, use the arrow keys to highlight the **NETWORK TOOLS** menu item in the Device Menu screen and press ENTER. The Network Tools screen displays. See [Figure 5-27](#).



Type **help** at the prompt to list all the commands that are available for the module in the current operational mode. See [Figure 5-27](#). A command used incorrectly (wrong syntax), will prompt a display of the correct usage.

Use lower case when entering commands in Network Tools.

```
Welcome to Network Tools

-> help

Commands Available to the User:

Built in Commands:

arp          bridge      defroute
netstat      ping          reset
show         traceroute
soft-reset   telnet        link_trap

atm_stp_state

SPECIAL:
done, quit, or exit - Exit from the Network Tools.
For help with a specific command, type 'help <command>'.

->
```

2251-75

Figure 5-27 Network Tools Screen

The Network Tools functions are performed using a series of commands. Entering commands in Network Tools involves typing the command to be executed at the Network Tools prompt, adding any desired or required extensions, and pressing ENTER.

There are two categories of commands in the command set.

- Built-in Commands – Allow the user to access and manage network devices. The commands are: **arp**, **bridge**, **defroute**, **netstat**, **ping**, **reset**, **show**, **traceroute**, **soft-reset**, **telnet**, **link_trap**, and **atm_stp_state**.
- Special Commands – Allow the user to exit from Network Tools. The commands are **done**, **exit**, and **quit**.



The conventions used in describing the commands in Network Tools are as follows:

Arguments enclosed by [] are required.

Arguments enclosed by < > are optional.

In the following command examples, information entered by the user is shown in **bold** Helvetica font.

To abort the output or interrupt a process, press the CONTROL key and c key simultaneously, designated as ^C here.

The commands are presented in the following format:

command:

Syntax:	Shows the required command format. It indicates where arguments, if any, must be specified.
Description:	Briefly describes the command and its uses.
Options:	Lists any additional fields in the appropriate format which may be added to the command.
Example:	Shows an example of the command.

5.22.1 Built-in Commands

The built-in commands listed in this section activate functions on the LM managed device or devices being accessed through Network Tools.

arp:

Syntax:	arp [options]
Description:	The arp command provides access to the ARP (Address Resolution Protocol) cache, enabling you to view cache data, delete entries, or add a static route. Super-user access is required to delete an entry or add a static route.

Each ARP cache entry lists the network *interface* that the device is connected to, the device's *network address* or IP address, the device's *physical address* or MAC address, and the *media type* of connection to the device. Media types are displayed as numbers, which stand for the following states:

- 1 - Other
- 2 - Invalid entry (cannot ping device, timed out, etc.)
- 3 - Dynamic route entry
- 4 - Static route entry (not subject to change)

You can specify the arp command with one of the following options:

Options:

- a Views cache data
- d Deletes an IP address entry. Requires additional arguments: [Interface Number] [IP address]
- s Adds a static entry. Requires additional arguments: [Interface Number] [IP address] [MAC address]
- f Flushes the ARP cache

Example:

```
-> arp -a
# Interface      Network Address  Physical Address  Media Type
# 31             122.144.40.111   00.00.0e.12.3c.04 3(dynamic)
# 3              122.144.48.109   00.00.0e.f3.3d.14 3(dynamic)
# 22             122.144.52.68    00.00.0e.12.3c.04 3(dynamic)
# 5              122.144.21.43    00.00.0e.03.1d.3c 3(dynamic)

-> arp -d 1 122.144.52.68

-> arp -s 1 22.44.2.3 00:00:0e:03:1d:3c

-> arp -f
```

051467

bridge:

Syntax: bridge [enable/disable] [ifnum/all]

Description: The bridge command allows bridge management to be enabled or disabled at the user's request, either one at a time or all at once. Specifying a single interface number will affect the bridging status of that interface, while specifying **all** will affect every interface.

Options: Not Applicable

Example:

```
-> bridge disable all  
  
-> bridge enable 1  
  
-> bridge disable 1
```

051468

defroute:

Syntax: defroute [interface number] [IP address]

defroute delete [interface number] [IP address]

Description: The defroute command allows the user, in the syntax order shown above, to view, set, or delete the default IP route to a managed device through the specified interface.

Options: Not Applicable

Example:

```
-> defroute 2 147.152.42.32  
#Default route is 147.152.42.32 on interface 2  
  
->defroute  
#Default route is 147.152.42.32 on interface 2  
  
->defroute delete  
#Default route is not currently set.
```

051469

netstat:

Syntax: netstat [option]

Description: The netstat command provides a display of general network statistics for the managed device. The netstat command must be used with one of the two display options.

Options:

- i** Displays status and capability information for each interface.
- r** Displays routing information for each interface.

Example:

```
-> netstat -i
Interface + Description      MTU      Speed      Admin  Oper  MAC Addr
# 1 (ethernet - csmacd)    1514     10000000   up     up    0x00 0x00 0x1d 0x07 0x50 0x0e
# 2 (ethernet - csmacd)    1514     10000000   up     up    0x00 0x00 0x1d 0x07 0x50 0x0f

-> netstat -r
Destination      Next-hop      Interface
# Default Route   DirectConnection  1
# 134.141.0.0     DirectConnection  2
```

051470

ping:

Syntax: ping [IP address]

Description: The ping command generates an outbound ping request to check the status (alive/not alive) of a device at a specified IP address.

Options: Not Applicable

Example:

```
-> ping 122.144.40.10
122.144.40.10 is alive
```

051471

reset:

Syntax: reset

Description: This reset command initiates a hardware reset of the device. The reset command initializes the CPU processor, runs the onboard diagnostics, and restarts the software image, which restores the user configuration settings from NVRAM. The user will be queried to confirm the reset command to ensure against unwanted resets.



The Network Tools connection to the device will be terminated upon execution of this command.

Options: Not Applicable

Example:

```
-> reset
RESET: Are you *SURE*? ->Y
```

174245

show:

Syntax: show [protocol] <table>

Description: The show command displays information concerning various components of the device. Protocols currently supported are IP, IPX, DECnet, and AppleTalk. Components of those protocols that are currently supported are ARP caches, route tables, FIB tables, server tables, and interface tables. The number of valid entries in the table will be displayed at the end of the table display.

Options: Not Applicable

Example:

```
-> show Appletalk interfaces
```

#	Interface	AdminStatus	OperStatus	MTU	Forwarding	Framing
# 1		enabled	enabled	1500	enabled	
# 2		disabled	disabled	1500	disabled	ethernet

```
-> show IP ARP
```

#	Interface	MediaType	PhysicalAddress	NetworkAddress
# 3		3 (dynamic)	00:00:1d:04:40:5d	123.456.40.1
# 4		3 (dynamic)	08:00:20:0e:d8:31	123.456.40.30
#				
# Number of valid entries: 2				

174246

traceroute:**Syntax:**

```
traceroute [IP address]
```

Description:

The traceroute command generates a TRACEROUTE request to a specified IP address and provides a display of all next-hop routers in the path to the device. If the device is not reached, the command displays all next-hop routers to the point of failure.

Options:

Not Applicable

Example:

```
-> traceroute 122.144.11.52
```

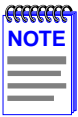
```
# next-hop[0] : 122.144.60.45
# next-hop[1] : 122.144.8.113
# next-hop[2] : 122.144.61.45
# 122.144.11.52 is alive : 3 hops away.
```

051477

soft-reset:

Syntax: soft-reset

Description: This command restarts the software image, which restores the user configuration settings from NVRAM. The user will be queried to confirm the reset command to ensure against unwanted resets.



The Network Tools connection to the device will be terminated upon execution of this command.

Options: Not Applicable

Example:

```
-> soft-reset
RESET: Are you "SURE" -> Y
```

174266

telnet:

Syntax: telnet [IP address] <Port #>

Description: The telnet command allows the user to communicate with another host (that supports Telnet connections) using the Telnet protocol. The user must specify the remote host using its IP address. The [IP address] field is mandatory. If no Port number is specified, telnet will attempt to contact the host at the default port.

Options: Not Applicable

Example:

```
-> telnet 134.141.12.345
Trying 134.141.12.345
Connected to 134.141.12.345
```

```
SunOS UNIX (server1)
```

```
login:
```

telnet

link_trap:**Syntax:**

`link_trap [enable/disable/status][PORT/all]`

Description:

The `link_trap` command allows link traps to be enabled or disabled either one port at a time or all ports at once. Specifying a single port number will affect only that port, while specifying **all** will affect every port. The current status of a single port, or all ports, can also be shown.

Options:

Not Applicable

Example:

```
-> link_trap status
LINK TRAP STATUS:

  Port 1 is ENABLED      Port 2 is DISABLED
  Port 3 is ENABLED      Port 4 is ENABLED

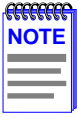
-> link_trap disable 2
Link traps have been DISABLED on port 2

-> link_trap disable all
Link traps have been DISABLED on all ports (1-4)

-> link_trap status 3
Link traps are ENABLED on port 3
```

linktrap

atm_stp_state:



The atm_stp_state command is only available if an HSIM-A6DP is installed in the device.
The device must be manually reset for this setting to take effect.

Syntax: atm_stp_state [STATE]

Description: The atm_stp_state command allows the user to enable, disable, or check the status of the Spanning Tree Algorithm on all ATM interfaces. The user must specify the STATE option as enable, disable, or status. The STATE field is mandatory.

Options: enable, disable, status

Example:

```
-> atm_stp_state status
Atm Stp is Enabled
-> atm_stp_state disable
-> atm_stp_state enable
```

099998

5.22.2 Special Commands

done, quit, exit:

Syntax: done, quit, or exit

Description: The done, quit, or exit command enables the user to exit from Network Tools and return to the Main Menu screen.

Options: Not Applicable

Example:

```
-> done
```

051472

APPENDIX A

SPECIFICATIONS

This appendix provides operating specifications for the Cabletron Systems 2M46-04R and 2M46-04RDC, where specified. Cabletron Systems reserves the right to change these specifications at any time without notice.

A.1 DEVICE SPECIFICATIONS

Processor:	Intel i960 RISC processor
Dynamic Random Access Memory (DRAM):	20 MB
FLASH Memory:	4 MB (expandable to 8 MB)

A.2 PHYSICAL PROPERTIES

Dimensions:	7.11H x 43.18W x 46.99D (cm) 2.8H x 17W x 18.5D (in)
Weight (Unit) 2M46-04R:	4.31 kg (9.5 lb)
Weight (Unit) 2M46-04RDC:	4.31 kg (9.5 lb)
MTBF (Predicted):	200,000 hours

A.3 ELECTRICAL SPECIFICATIONS

Table A-1 2M46-04R

Line Input Range Volts (V)	Input Current Amperes (A)	Frequency Hertz (Hz)	Input Power Volt Amps (VA)
100–125 Vac	2.0 A	50/60 Hz	250 VA
200–250 Vac	1.0 A		

Table A-2 2M46-04RDC

Line Input Range Volts (V)	Input Current Amperes (A)	Power Consumption
36-72 Vdc	4.0 A	100 Watts

A.4 ENVIRONMENTAL REQUIREMENTS

Operating Temperature: 5°C to 40°C (41°F to 104°F)
Storage Temperature: -30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity: 5% to 90% (non-condensing)

A.5 INPUT/OUTPUT PORTS

Slots for optional ports 1 and 2: Slots accept three types of optional Fast Ethernet Interface Modules: the FE-100TX, the FE-100FX, and the FE-100F3.

Slot for optional HSIM ports: Slots accept optional High Speed Interface Modules.

A.6 COM PORT/PIN ASSIGNMENTS

The COM port is a serial communications port that supports Local Management or connection to a UPS. [Table A-3](#) shows the COM port pin assignments.

Table A-3 COM Port Pin Assignments

Pin	Signal Name	Input/Output
1	Transmit Data (XMT)	Output
2	Data Carrier Detect (DCD)	Output
3	Data Set Ready (DSR)	Input
4	Receive Data (RCV)	Input
5	Signal Ground (GND)	NA
6	Data Terminal Ready (DTR)	Output
7	Request to Send (RTS)	Input
8	Clear to Send (CTS)	NA

A.7 REGULATORY COMPLIANCE

This equipment meets the following safety and electromagnetic compatibility (EMC) requirements:

Safety	UL 1950, CSA C22.2 No. 950, EN60950, IEC 950, and 73/23/EEC
Electromagnetic Compatibility (EMC)	FCC Part 15, EN 55022, CSA C108.8, EN 50082-1, VCCI V-3, AS/NZS 3548, and 89/336/EEC

APPENDIX B

FE-100TX, FE-100FX, AND FE-100F3 SPECIFICATIONS

The 2M46-04R supports three Fast Ethernet Interface Modules:

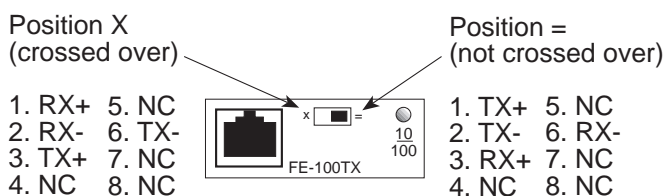
- FE-100TX (Section B.1)
- FE-100FX (Section B.2)
- FE-100F3 (Section B.3)

This appendix provides the specifications for these modules.

B.1 FE-100TX

The FE-100TX uses an RJ45 connector supporting Category 5 Unshielded Twisted Pair (UTP) cabling with an impedance between 85 and 111 ohms.

The slide switch on the FE-100TX determines the crossover status of the cable pairs. If the switch is on the **X** side, the pairs are internally crossed over. If the switch is on the **=** side, the pairs are not internally crossed over. Figure B-1 shows the pinouts for the FE-100TX in both positions.



16651_05

Figure B-1 FE-100TX Pinouts

B.2 FE-100FX

The FE-100FX shown in Figure B-2 uses an SC style connector that supports multimode fiber optic cabling. Specifications for the FE-100FX are listed in Table B-1, below.

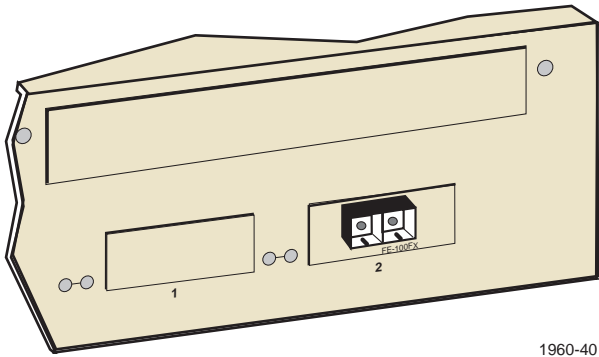


Figure B-2 FE-100FX

Table B-1 Transmitter Power

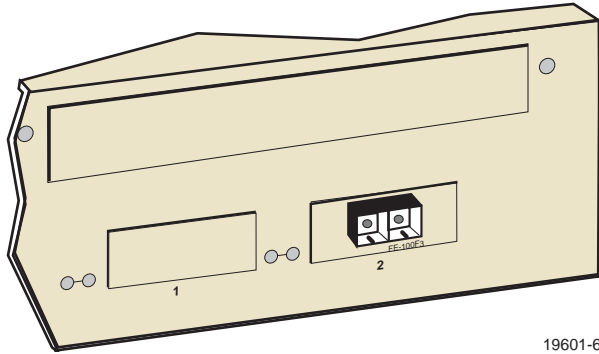
Cable Type	Worst Case Budget	Typical Budget
50/125 μm fiber optic	6.0 dB	9.0 dB
62.5/125 μm fiber optic	9.0 dB	12.0 dB
100/140 μm fiber optic	15.0 dB	18.0 dB



The transmitter power levels and receive sensitivity levels listed are peak power levels after optical overshoot. A peak power meter must be used to correctly compare the values given above to those measured on any particular port. If power levels are being measured with an average power meter, add 3 dB to the measurement to compare the measured values to the values listed above.

B.3 FE-100F3

The FE-100F3 shown in [Figure B-3](#) uses an SC style connector that supports single mode fiber optic cabling. Specifications for the FE-100F3 are listed in [Table B-2](#), below.



19601-68

Figure B-3 FE-100F3

Table B-2 Transmitter Power

Cable Type	Worst Case Budget	Typical Budget
8/125 μm fiber optic	>10.0 dB	<10.0 dB
12.5/125 μm fiber optic	>10.0 dB	<10.0 dB



The transmitter power levels and receive sensitivity levels listed are peak power levels after optical overshoot. A peak power meter must be used to correctly compare the values given above to those measured on any particular port. If power levels are being measured with an average power meter, add 3 dB to the measurement to compare the measured values to the values listed above.

APPENDIX C

OPTIONAL INSTALLATIONS AND MODE SWITCH BANK SETTINGS



ONLY QUALIFIED SERVICE PERSONNEL SHOULD ATTEMPT THE FOLLOWING PROCEDURES.

NUR QUALIFIEZIERTE SERVICE PERSONNALL DIE FOLGENDE PROCEDURE FOLGEN SOLLTEN.

SOLAMENTE PERSONAL CALIFICADO DEBE INTENTAR ESTE PROCEDIMIENTO.

The top cover must be removed to gain access to the mode bank switches and to install the Fast Ethernet Interface Modules and the High Speed Interface Modules.

This appendix covers the following items:

- Required tools ([Section C.1](#))
- Removing the chassis cover ([Section C.2](#))
- Locations, functions, and settings for the mode switches ([Section C.2.1](#))
- Installing Optional Fast Ethernet Interface Modules ([Section C.3](#))

C.1 REQUIRED TOOLS

You need the following tools to perform the procedures provided in this appendix:

- Antistatic wrist strap
- Phillips screwdriver

C.2 REMOVING THE CHASSIS COVER

This section describes how to remove the 2M46-04R chassis cover.



DO NOT REMOVE THE COVER FROM THE 2M46-04R WHILE POWER IS APPLIED TO THE UNIT.

THIS UNIT MAY HAVE MORE THAN ONE POWER SUPPLY CORD. DISCONNECT ALL POWER SUPPLY CORDS BEFORE SERVICING.

DO NOT POWER UP THE 2M46-04R AGAIN UNTIL THE COVER AND SCREWS ARE IN PLACE.

To remove the chassis cover, proceed as follows:

- 1.** Disconnect the 2M46-04R from the network as follows:
 - a.** For the 2M46-04RDC, flip the DC switches located on the back of the chassis to the “OFF” position.

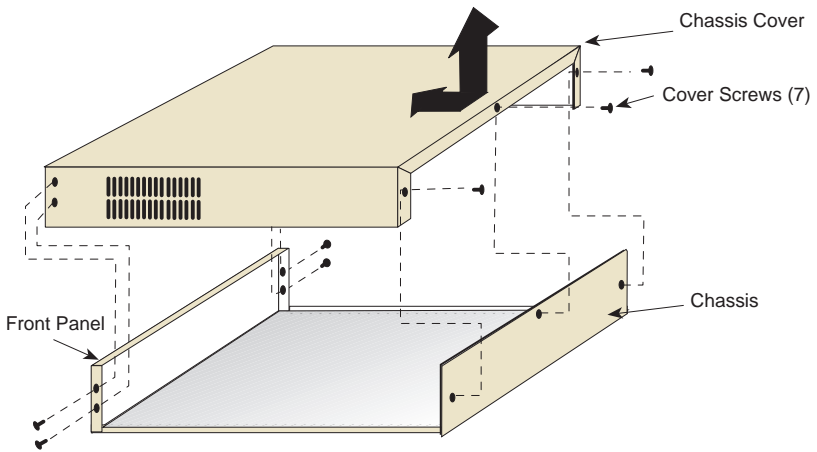
For the 2M46-04R, disconnect all power cords from the rear of the chassis.



Before performing step b, mark the cables connected to the 2M46-04R according to their associated port numbers. This is recommended for ease of reinstallation.

- b.** Disconnect all network cables attached to the 2M46-04R.
- 2.** If the 2M46-04R is rack mounted, remove it from the rack and remove the rackmount brackets (refer to **Chapter 3, Installation**).
- 3.** Use a Phillips screwdriver to remove the seven screws attaching the cover to the chassis. (See **Figure C-1**.)
- 4.** Remove the cover by sliding it back until it clears the front of the chassis and then lifting it straight up and off of the chassis.

To reinstall the chassis cover, perform the removal procedures in reverse.



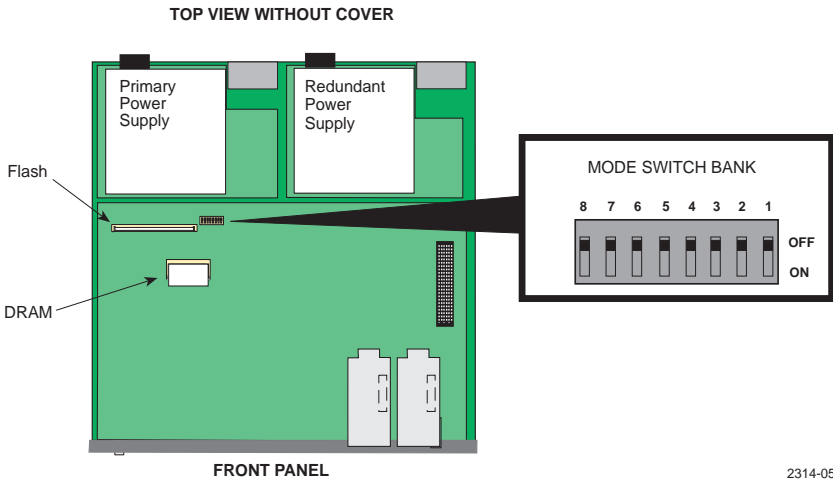
Note: If the 2M46-04R was rack mounted, the four screws fastening the cover to the front panel are removed and installed along with the rackmount brackets.

19601-30

Figure C-1 Removing the Chassis Cover

C.2.1 Setting the Mode Switch

Figure C-2 shows the location of the mode switches and the switch settings for normal operation. These switches are set at the factory and do not need to be changed.



2314-05

Figure C-2 2M46-04R Mode Switch Location/Component Layout

Switch definitions and positions are as follows:

- Switches 1 through 4 – For Cabletron Systems use only.
- Switch 5 – COM Port Autobaud. The default (OFF) position enables Autobaud sensing on the COM port for Local Management sessions. Changing the switch to the ON position disables Autobaud sensing and sets the COM port to 9600 baud for Local Management sessions.
- Switch 6 – Forced BootP. Do NOT attempt a Forced BootP unless a BootP server has been configured for the 2M46-04R. The BootP server references the location of a station acting as a Trivial File Transfer Protocol (TFTP) server containing the 2M46-04R image file. When the position of Switch 6 is changed and the power is cycled to the 2M46-04R, the device requests the image file location from the BootP server and uses TFTP to download the image from the TFTP server. If one of these requirements is not met, the 2M46-04R will continue to request either the BootP server or the TFTP server until the RESET button on the 2M46-04R is pressed. Once the RESET button is pressed, the 2M46-04R will reset after one minute and load the image stored in FLASH memory.

- **Switch 7 – Clear NVRAM.** Changing the position of this switch resets NVRAM on either the next power-up or the next operation of the front panel RESET button. All user-entered parameters, such as the IP address, device names, etc., are reset to the factory default settings. Once the 2M46-04R resets, you can either use the factory default settings or reenter your own parameters.
- **Switch 8 – Reset Password/Community Strings.** Changing the position of this switch clears user-entered passwords stored in NVRAM, and restores the factory default passwords on either the next power-up or the next operation of the front panel RESET button. Once the 2M46-04R resets, you can either use the factory default settings or re-enter your own passwords.

C.3 INSTALLING OPTIONAL FAST ETHERNET INTERFACE MODULES

Figure C-3 shows the locations of the Fast Ethernet Interface Module connectors on for ports 1 and 2 and an optional High Speed Interface Module installed in port HSIM 1.

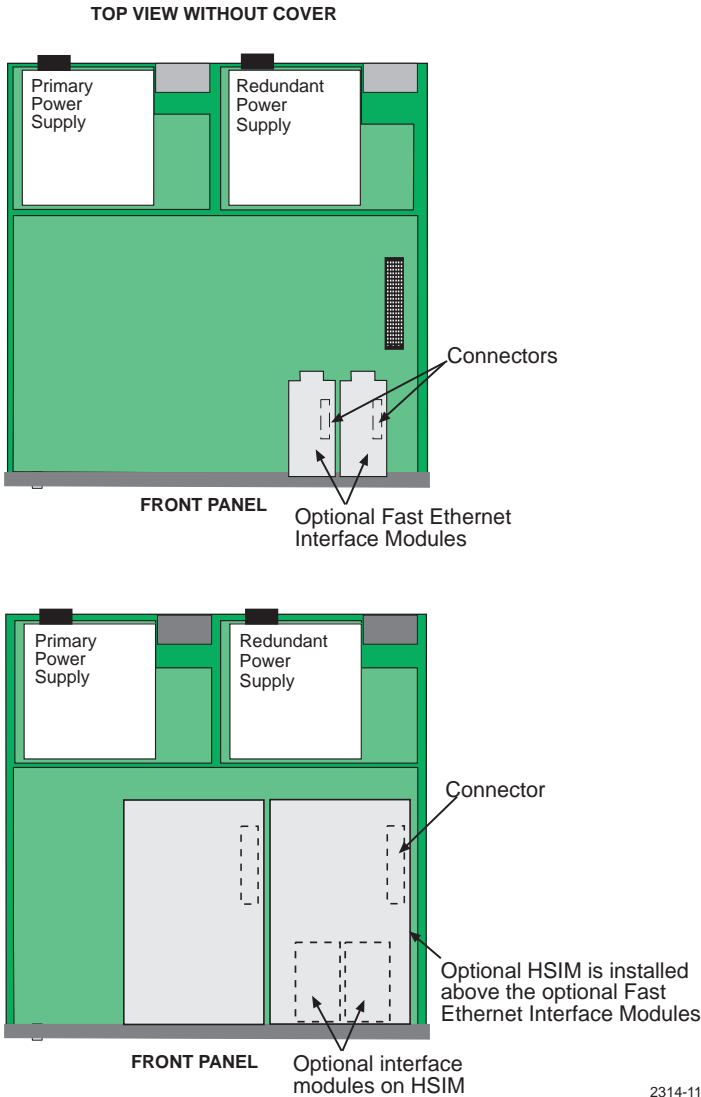


Figure C-3 Fast Ethernet Interface Module Connector Location



The installation instructions for the High Speed Interface Modules are in the associated HSI user's guide.

To install a Fast Ethernet Interface Module in port slot 1 or 2, proceed as follows:



The FE-100F3 uses Class 1 lasers. Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

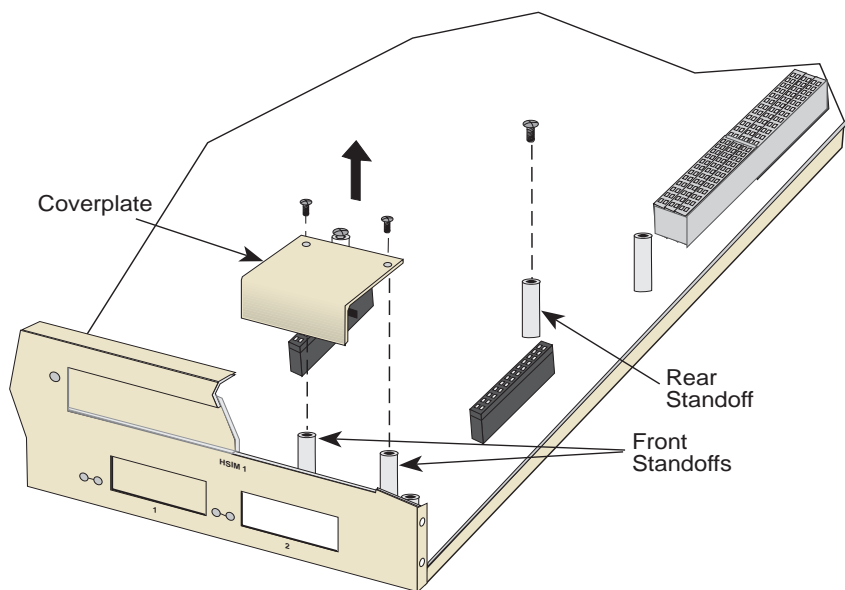


The Fast Ethernet Interface Module and the 2M46-04R are sensitive to static discharges. Use an antistatic wrist strap and observe all static precautions during this procedure. Failure to do so could damage the module or the 2M46-04R.



When installing Fast Ethernet Interface Modules in both port slots 1 and 2, remove the coverplates from both slot openings. In the following instructions, the optional module is shown being installed in port slot 2.

1. Remove the coverplate from the port slot where the Fast Ethernet Interface Module will be installed. Refer to [Figure C-4](#) and proceed as follows:
 - a. Remove the two screws fastening the coverplate to the standoffs. Save the screws.
 - b. Lift and remove the coverplate from the top of the front standoffs.



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Figure C-4 Coverplate Removal

2. Remove the screw from the rear standoff. Save the screw.



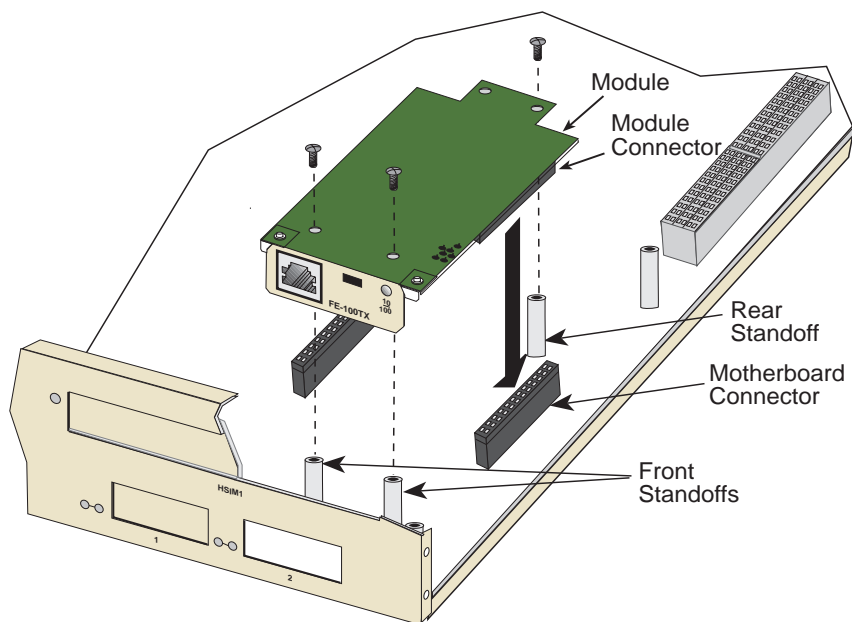
When installing an FE-100FX or FE-100F3 module into the 2M46-04R, remove the rubber plug on the module before proceeding.

3. See [Figure C-5](#). Gently pull the faceplate of the 2M46-04R forward to allow room for the Fast Ethernet Interface Module to be aligned over the connector.



In the following step, take care when inserting the Fast Ethernet Interface Module into the motherboard connector, so that the pins do not bend. Otherwise, the Fast Ethernet Interface Board and the motherboard could be damaged.

4. Carefully lower the Fast Ethernet Interface Module onto the standoffs while inserting the module connector into the associated motherboard connector.



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Figure C-5 Installing the Fast Ethernet Interface Module

5. Press down firmly on the Fast Ethernet Interface Module until the pins slide all the way into the motherboard connector. Ensure that the Fast Ethernet Interface Module seats flush on the standoffs.
6. Secure the Fast Ethernet Interface Module with the screws saved in steps 1 and 2.
7. Reinstall the cover.

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